THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 81. NEW YORK, SATURDAY, SEPTEMBER 13, 1902. NO. 11.

ORIGINAL ARTICLES.

EMPYEMA IN INFANTS AND CHILDREN: ITS FREQUENCY, ETIOLOGY, SYMPTOMATOLOGY AND PROGNOSIS.*

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FROM a clinical standpoint it is not possible in infants and children to sharply differentiate the symptoms of pleurisy with effusion from those of empyema. They merge into one other and it is convenient to consider both under the common heading of effusion into the pleural cavity.

The frequency of empyema in infancy and childhood has been variously stated. The greatest number of cases of empyema occur before the fifth year of life (Simmonds). Fully 40 per cent. of the pleurisies in infancy and childhood are purulent. In adults only five per cent. of pleurisies are of this nature (Mackey). The greater frequency is found to occur in the male sex (Hofmokl). Bilateral involvement was found in two, or 12 per cent., of the author's personal cases.

In infants purulent effusions are very common and in most children before the age of five years an effusion is very likely to be purulent. Of my own cases, numbering 120, 104 occurred in children under five years of age, sixteen between the fifth and tenth years; thirty-nine were between the age of one and two years and sixteen were less than twelve months old. The youngest infant was two months old.

Etiologically, in infants and children empyema follows some acute affection of the lung in fully 95 per cent. of the cases. This affection in 69 per cent. of the author's cases was probably a pneumonia pure and simple for the pneumococcus was found in the exudate, either in pure culture or combined with the streptococcus pyogenes. In 15 per cent. of the cases the streptococcus pyogenes alone was found, in 9 per cent. the staphylococcus and in only 7 per cent. of the cases the tubercle bacillus was found or the exudate was free from bacterial contamination. In the latter class of cases the presumption was that the empyema was tuberculous. These statistics are founded on a personal series of seventy-one cases, in which cultures were made of the bacteria in the exudate. These figures correspond closely to those of Netter in a series of twenty-eight cases in children. The tuberculous forms of empyema are thus the infrequent variety in children. In adults Bowditch found that fully 45 per cent. of the pleurisies including empyema were tuberculous. With children many of the streptococcus and staphylococcus cases must be included under the heading of the metapneumonic forms of pleurisy. But a very small percentage of these cases is tuberculous. In the adult subject a much larger percentage of the streptococcus and staphylococcus cases is tuberculous, although tubercle bacilli are not found in the exudate.

It will be seen at a glance that in infants and children empyema is an acute affection. It follows all forms of pneumonia, the infectious diseases, measles, scarlet fever, pertussis, typhus and typhoid fever, diphtheria, forms of tonsillitis, retropharyngeal abscess, mediastinal abscess, or chronic intestinal catarrh. Sepsis of the newborn infant, osteomyelitis and appendicitis. All these affections may be complicated by empyema, and although exposure to cold and dampness predispose to an attack of this affection they cannot be said to directly cause it.

The nature of the purulent effusion is of clinical interest. In the majority of cases the purulent effusion into the pleura has the gross characteristics of ordinary pus. In other cases the effusion is first a clear serous effusion and subsequently is seen to change into a purulent one without any extraneous infection. In another set of cases the effusion is a cloudy serum which is found on subsequent exploratory puncture to be purulent. In very rare cases the exudate into the chest is hemorrhagic. A hemorrhagic empyema has not the serious significance in children that it has in the adult—it is not necessarily tuberculous or due to a new growth of the pleura; such pleuritic exudates may be rheumatic if serous. If purulent, there may be a scorbutic element in the case. I have seen a number of hemorrhagic exudates which did not appear to be tuberculous or due to new growths of the lung or pleura. In a series of 120 cases of empyema three were hemorrhagic. The exudate was hemorrhagic at the operation and at each subsequent dressing the pus was mingled with blood, giving a chocolate color to the exudate. All of these cases made a good recovery; in all of them streptococci were found and isolated in culture, but in none was the tubercle bacillus found.

Symptoms.—We can scarcely speak of any symptoms which are distinctive of empyema. The disease is masked by the symptoms of the main causal affection. Those cases which follow a pneumonia will set in with the symptoms and signs of lobar or bronchopneumonia. When the main affection has run its course the temperature drops to the normal and may continue thus for a few days. After this period the temperature may show a daily elevation of a half a degree or more. Examination at this time will give, in addition to the signs of a resolving pneumonia, those of fluid in the chest. Puncture of the chest may reveal a serous effusion. At the

* Read before the County Medical Society, 1902.

end of the second week the temperature may show a sudden rise of two or more degrees. Puncture of the chest will disclose that the effusion is purulent.

In other cases the temperature, pulse and respirations, after the first week or ten days of the pneumonia, do not recede to the normal. There is a persistent temperature with increased pulse rate and rapid respiration. The signs in the chest, instead of clearing up, only become more and more marked, resembling very closely an extension of the pneumonia, when in reality there is, in addition to the process in the lung, fluid in the pleura. After twelve to fourteen days the signs of fluid in the chest are more apparent and an exploratory puncture reveals an empyema.

In still other cases the empyema has its onset with the pneumonia in the lung and is masked by the signs of the pneumonia. The temperature, pulse and respiration continue high and very early in the disease, the eighth day, signs of an effusion is found.

In another series of cases the progress of the disease is more insidious. After two or three days of fever the temperature subsides and the other symptoms of pain and dyspnea moderate. There remains a slight hacking cough, steady emaciation, pallor, and loss of appetite. To these may be added exhausting night sweats. If the chest is examined at this time we may find it full of fluid which on puncture reveals the presence of an empyema. There are some symptoms such as exhausting night sweats, a distinctly intermittent range of temperature, which with a persistent increased number of respirations may direct our attention to the chest. None of these, however, are pathognomonic of empyema but may be found in other pulmonary conditions.

The physical signs must always be taken into careful consideration in an attempt to diagnose fluid in the chest. In infants and children the classical signs of fluid in the chest may be absent and still the chest may be the seat of an exudate. In fact effusion of fluid in the chest in infants and children gives signs which are not found in the adult. It is comparatively simple to diagnose fluid which only partly fills the chest. If the chest is full of fluid the difficulties of diagnosis are rather increased.

Space and time will not permit us a complete and exhaustive consideration of the signs of fluid in the chests of intants and children, but we may point out the main features of some cases.

(a) The pleural cavity may be full of fluid and still tne voice and breathing will be normal or only slightly diminished in intensity over the whole chest anteriorly and posteriorly; (b) broncophony and bronchial breathing with pleuritic râles may in some cases be heard over the whole of one side of the chest, the seat of effusion

Of greatest utility are the percussion note, the fremitus, and the displacement of viscera. The percussion note posteriorly is flat over the whole side. There is a resistance which is detected by the finger on percussion, and which is quite characteristic in infants and children. Anteriorly the note on percussion varies widely. It may be hyperresonant over the apex of the lung (Skoda's resonance) due to lung compression. In most cases the fremitus is absent or diminished if the infant cries. In older children who are intelligent fremitus may be elicited in the same manner as in the adult. On the left side the displacement of the apex of the heart, and on the right side that of the liver, are of confirmatory value. The diagnosis of fluid in the chest is not always a simple matter. If an infant or child has been ill for two weeks with signs of pneumonia in the early part of the disease we should be on our guard. First, if the temperature does not fall but though remitting still continues; if the signs of local consolidation of small or large areas give place to dulness or flatness over the whole side of the chest; if the condition of the patient is tolerably good it is self-evident that these signs, even if combined with broncophony and bronchial breathing cannot always be due to consolidation of the whole lung. If in addition there are displacement of viscera, principally the heart and liver, with drawing inward of the intercostal spaces during inspiration, immobility of the affected side and bulging, the dulness or flatness and loss of fremitus are presumptive evidences of fluid in the pleural cavity. Encapsulation of fluid, though not very common, does occur, especially in the region between the lobes of the lung (interlobar). In these cases the signs of fluid are most apparent in the mid and posterior axillary lines. We then obtain signs of a localized collection of fluid, flatness, bronchial voice and breathing and in some few cases, especially on the right side just above the liver, a tenderness of the ribs on percussion.

There are certain localities in which the diagnosis of fluid must be made with reserve. These are over the upper lobe of the lung in front, over the lower lobe in front on the right or left side without corresponding signs behind.

No diagnosis is complete without exploratory puncture of the chest. This is a comparatively simple procedure devoid of any danger. This is not the place to enter into the minutiæ of this operation. It may be said that rather than be in doubt we should enter the exploring needle into any chest in which the signs lead us to suspect fluid. The omission of such a puncture is only unjust to the patient. With ordinary care we do not subject the patient to any risk of further infection. We cannot readily cause a serous effusion to become purulent if ordinary cleanliness is exercised. Puncture should always be made with the patient in the upright posture. One or two punctures only should be carried out at a sitting. If no fluid is obtained we should not hesitate, should signs and symptoms persist, to again enter the chest after a reasonable interval.

The prognosis of the metapulmonic form of empyema in infants and children is good—certainly not more serious than the original affection which gave rise to the condition. In private

practice where the patient is observed from the outset of the disease and we can interfere by surgical means at the right moment, the outlook is much better than in hospital practice. In the latter the patient comes to the physician at a very late period of the disease. The exhaustion is sometimes extreme and in many cases systemic infection has taken place. Witn all of these drawbacks the results in hospital practice are not bad. Each patient should receive due consideration as to the nature of the operative procedure to be followed; whether incision or resection. Of 120 cases of all kinds operated upon, some by incision, others by resection in the author's hospital service, twenty died. Of these fatal cases four died within one to five days after admission. In the latter, not the operation but the delay in interference with consequent sepsis or systemic infection was the cause of death. These cases could have been saved had an opportunity been offered for earlier interference.

Of twenty cases of death after operation, pneumonia, either persistent or recurrent, caused the fatal issue in eleven cases; general sepsis in two; marasmus and ulcer of the duodenum in one, and in two cerebral embolism was found postmortem. In the remaining three the cause of death was unknown, that is, no postmortem was allowed. In one of the above cases of terminal pneumonia the empyema finally involved the opposite side. In one case also, in addition, the pericardium was found involved at the postmortem. It will be seen that the complication most to be feared is bronchopneumonia. This may involve the lung of the operated side—a more frequent occurrence than an affection of the lung on the unaffected side. I have not as yet been able to find the cause of this secondary bronchopneumonia. In some cases in which it occurred late in the convalescence it seemed to be rather a re-infection traceable to infectious matter present and dormant in the system prior to the operation. In other cases the bronchopneumonia was present at the time of operation. The lung in the latter could be seen through the operation wound to be partially solidified. Most of these patients in whom the lung is found in this condition after operation do not recover; they die of general systemic infection combined with persistent pneumonia in the lung. The prognosis of the tuberculous forms of empyema in children must rest on the age of the patient and the extent of lung involved with the pleuritic affection. In children the outlook in this form of empyema on the whole is much better than in the adult subject.

Bachelor Degrees in Three Years.—The University of Pennsylvania has made a move in the direction of solving an important question of college and medical courses by making it possible for its students to obtain the bachelor's degree in three years. Those students who prefer to work at a slower rate may take at their pleasure either four or five years for doing the same amount of work. This change is not in the nature of a combined short course for medical students, but to an earnest worker it reduces the time one year.

SURGICAL TREATMENT OF EMPYEMA. A REPORT BASED UPON SEVENTY-FIVE CASES, OBSERVED CHIEFLY IN ST. MARY'S HOSPITAL FOR CHILDREN.

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SEVENTY-THREE of the patients who form the basis of this report were between two and fifteen years of age; this average was greater than that of other series, and this difference probably accounts for the greater proportion of tuberculous cases. Two of the patients were adults who recovered satisfactorily after illness somewhat longer than the average for children. All but six of the patients were treated in St. Mary's Free Hospital for Children. The statistics of fourteen cases previously reported from that hospital by Dr. Charles T. Poore are included. Since 1894 there have been sixty-one cases under the personal observation of the writer; some of the operations, however, have been done by Dr. Poore, attending surgeon; Drs. Carmalt, Mathews and Downes, assistant surgeons; and Drs. Kosmak, Clark and Munger, house surgeons.

Clinical Classification of Cases.—From a therapeutic standpoint the cases readily divided themselves into three groups:

(I.) Simple Empyema: recovery coming within three months or less.

(II.) Protracted Empyema: recovery being delayed more than three months.

(III.) Fatal Cases.

This classification does not exactly correspond to the bacteriological findings, but most of the first group, the simple cases, were due to pneumococci; and many of the protracted and fatal cases were due to tuberculosis; but the duration of lung compression, the amount of pleuritic thickening and the ability of the patient to resist the effect of the inflammation are to be considered as well as the bacterial cause of the disease.

Figures I, II and III indicate the conditions usually found in simple cases, protracted cases, and in that class of protracted cases in whom tuberculous foci caused persistent sinuses.

Description of the Routine Methods of Treatment.—The treatment has varied with the conditions which were present. The ordinary treatment for the acute cases has been to excise under anesthesia about one and one-half inches of a rib, usually the seventh or eighth, in the posterior axillary line; to permit the pus to escape and then remove the coagula if they were present. A rubber drainage tube, cut partly across and doubled on itself, was inserted and secured with large-sized safety pins, an absorbent sterile dressing was then applied and changed as often as it became saturated.

Expansion of the lung was encouraged by allowing the patients to be up at as early a date as possible and having them make forced expiration by blowing into a jar, so arranged that water

was forced through a tube into a second jar. No irrigation of the pleural cavity was used excepting in cases in which there was a very foul smelling discharge due to necrotic lung tissue. Aspiration was used as a temporary expedient in certain patients who needed to be relieved of the pus without delay, but who were suffering so much from dyspnea and prostration that immediate operation was inadvisable. In each of

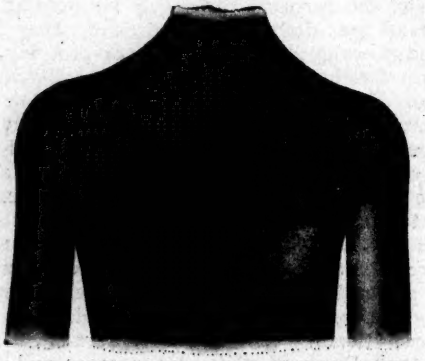

Fig. I.—Acute empyema; showing left pleural cavity greatly distended by pus. The lung is compressed toward the spinal column. The pleura is not much thickened. The pus contains numerous coagula.

these instances the chest was easily opened a few days later.

It was also used in two cases of double empyema to temporarily remove the pus from the one side of the chest after the other had been opened.

It was also used in a few instances to test its efficacy in cases of slight virulence, but the results were not satisfactory.

Incision between the ribs was substituted for excision of a piece of rib in certain instances where anesthesia was contra-indicated.

In the protracted cases secondary operations were done when the conditions had remained apparently stationary for four or five weeks and when there was little likelihood of a cure without such operation. In the earlier cases portions of the chest wall were removed by the methods of Schede and Estlander. During the last two years, when suitable occasion occurred, the thickened pulmonary pleura has been separated from the lung as suggested by Fowler and Delorme.

The details of treatment can best be considered by studying the different groups of cases.

Study of the Separate Groups of Cases.

Simple Empyema.—Let us now consider the group of simple cases which healed without important incident within three months. There were forty of them, 53⅓ per cent. of the entire number. Eight healed within the first month, eighteen in the second month and fourteen in the third month. This is the class of cases which are most often seen in private practice, the ones about whom discussion has often centered with regard to the merits of aspiration, incision and other methods of treatment.

No doubt some of them would have recovered under treatment by aspiration, by incision without rib resection, or by the use of trocar and canula. It is, however, the general belief that resection of a piece of rib and free drainage gives the best results in a series of such cases and that it is the best routine treatment for the ordinary case. Holt's[1] analysis of 121 cases treated by aspiration shows that only twenty-three of the entire number recovered without further surgical procedure. This corresponds with the experience of other observers; and one can hardly recommend for such a disease as empyema a method of treatment which offers chances of success at a ratio of less than one to five. It is not, however, of paramount importance how the first liberation of pus is accomplished: for patients who are gasping for breath, and whose condition is really critical, aspiration may be a life-saving procedure; for patients who are not in a condition to take a general anesthetic incision between two ribs and the insertion of a tube may be the best of all methods. But it is of the utmost importance that these methods should not be persisted in when more radical measures are indicated. The two following instances illustrate this point:

(1.) A patient suffering from pneumococcus empyema in whom aspiration was practised, but the lung failed to expand and pneumothorax resulted. He was doing badly under aspiration. He recovered satisfactorily, however, when a

Fig. II.—Protracted empyema. The chest wall is much contracted. The lung is still much compressed. The pleura is greatly thickened by a firm deposit of fibrinous material. Tubercles may or may not be present.

piece of rib was removed and thorough drainage established.

(2.) A patient whose chest was opened by incision between two ribs, was doing badly at the end of two weeks; he had the symptoms of sepsis, and there was a profuse discharge of foul smelling pus. On removing a piece of rib a large amount of fetid coagula was found in the

[1] Archiv. Pediatrics, May, 1892.

chest cavity and after its removal prompt recovery followed.

There are other similar cases in the series. The proper opening of the chest cavity was essential in them all; although the temporary measures which were used at first may have been best under the existing circumstances.

Protracted Empyema.—In this second group there were twenty-four cases; their character is indicated by the following résumé: In four of them the pus perforated the chest wall. In one it perforated the diaphragm and came to the surface below the costal border. In two it perforated the lung, about two quarts being coughed up in one instance. In one there was an abscess of the lung. In three cases there was bilateral empyema. In four cases there was tuberculosis with healing. In three cases there was tuberculosis with persisting sinus. In one case there was necrosis of a rib. In five cases there was delayed healing for which no definite reason could be assigned except the severity and extent of the disease.

Fig. III.—Chronic empyema with persisting sinus. A portion of the chest wall has been removed and hence there is greater retraction than in Diagram II. The lung is confined by the thick, dense deposit upon the pleura. Tubercular inflammation is present at the apex and the resulting discharge prevents the closing of the sinus.

Five of the cases healed in the fourth month; nine in the fifth; two in the sixth; one in the eighth; one in the ninth; one after nineteen months; one after twenty-five months; one after twenty-nine months; three had each a small sinus when last seen.

Five of the fatal cases should also be counted among the protracted cases. Thus we see that in this collection of seventy-five cases, most of them treated in the hospital (where the severest type of cases is usually seen), there were twenty-nine or 38⅔ per cent. who had tuberculosis or some other complication which caused a protracted illness.

It is to this class of cases that your attention is particularly asked, since their treatment presents the most puzzling problems. The methods of closing the cavity are based on two principles: (1.) Causing contraction of the chest wall; (2.) permitting expansion of the lungs.

If chest wall and lung can be brought together, the cavity between them is obliterated and a sinus can only persist when the discharge from a focus of disease (usually tuberculous) keeps it open.

Methods of Securing Contraction of Chest Wall.—Estlander removed portions of several ribs and thus alowed the chest wall to sink toward the lung. Schede excised portions of the costal pleura and intercostal muscles in addition to the portions of ribs, and thus obtained still greater collapse of the chest wall. These methods have been in use for years and the results are in many instances satisfactory, long persisting sinuses having been obliterated by their use and many lives having been saved. In certain instances the lung partially re-expands after healing has taken place; in others it fails to do so, and if a large portion of the chest wall has been removed the resulting deformity is very great.

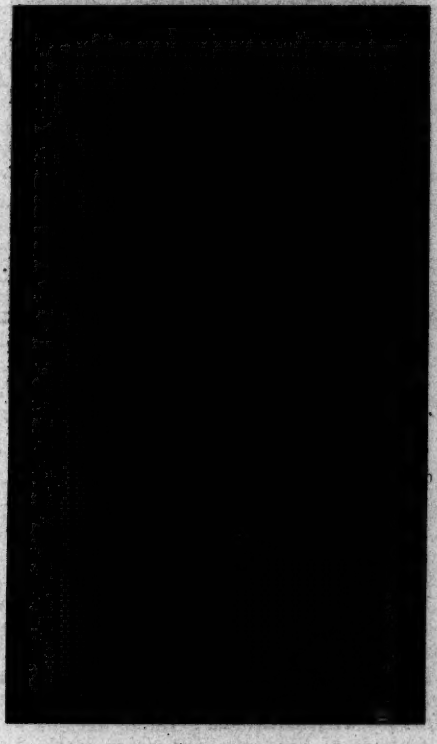

Fig. IV.—Tuberculous empyema. Healed by Fowler's method four years and five months after the first operation.

In twelve of the cases of this series portions of ribs or chest wall were removed acording to one of these methods, without incision of the pulmonary pleura; in six of them healing resulted; two others had each a small sinus at the time of last observation; four died; two with un-

doubted tuberculosis, the other two probably with tuberculosis.

In the patients from whom only a small portion of chest wall was removed (one to five inches

Fig. V.—Healed tuberculous empyema; same case as Fig. IV, back view.

from two or three ribs) the resulting deformity was insignificant. In those from whom large portions of chest wall were removed the resulting deformity was sometimes great.

Methods of Securing Expansion of the Lung.—It was manifestly very important to secure expansion of the lung if possible. This is encouraged in the ordinary cases by exercise and forced expiration. In the severe cases, however, there is a dense layer of fibrinous material on the surface of the pleura. This in some instances is an inch or more in thickness and envelops the collapsed lung in a dense unyielding capsule which is a positive barrier to its expansion.

In October, 1893, Dr. Geo. R. Fowler[1] of Brooklyn dissected away a portion of this dense covering and found that the lung, thus freed, expanded and soon filled the pleural cavity, thus obliterating a sinus which had existed for two years in spite of various forms of treatment.

Delorme[2] in January, 1894, having previously experimented on the cadaver, did a similar operation for an empyema of long standing and gained a similar result. He compared the expanding of the lung to that which is seen when air is blown into an animal's lung.

Since then many similar operations have been done. In some instances incision has been made through the thickened pleura to the lung and the pleura has been stripped back on each side; in other instances the thickened pleura has been dissected away bodily. The results have been sufficiently good to encourage similar procedures in suitable cases. The operation itself is not particularly dangerous nor yet particularly difficult in most instances, the hemorrhage is not excessive and is easily controlled by pressure or ligation. With the aid of retractors access to the pleura can be gained without cutting away large portions of ribs or chest wall.

Fowler has collected the statistics of thirty cases in which this method has been used, and gives the following table of results: Cures eleven; improved, six; unimproved, nine; died,

Fig. VI.—Protracted empyema. The pus had perforated the chest wall in two places. Healing followed the incising and stripping back of the pulmonary pleura. Photographed two years after operation. Boy in vigorous health, with good expansion and good respiratory murmur on both sides of chest.

three; in doubt, one. The writer has used this method four times; incising the pleura and stripping it back. In two instances satisfactory cures resulted. In the third case the lung expanded well, but a sinus still persists, due, I believe, to tuberculosis at the apex. In the fourth case the pleura could not be separated from the lung on

[1] N. Y. Med. Record, Dec. 30, 1893.
[2] Gaz. des Hôpitaux, 1894, No. 11.

account of tuberculous inflammation which proved fatal at a later time.

The appearance of the patients whose sinuses healed is indicated in the accompanying photographs. The first (see photographs, Figs. IV and V), who is now ten years old, was first operated upon for empyema in October, 1897; a few months later a second operation was done at one of the hospitals in the city and tuberculosis was found in the pleura. The wound healed but opened again.

On October 20, 1899, the writer excised portions of the fourth, fifth, sixth, seventh and eighth ribs and the corresponding part of the chest wall according to Schede's method. On November 15, 1900, the scar tissue was resected and the thickened pulmonary pleura incised and stripped back from the lung. The lung was found to have a delicate pink color and it expanded readily where it was liberated. A small sinus persisted till March, 1902, when it healed. The child was seen June 23, 1902. The sinus is entirely healed and there is a good respiratory murmur all over each lung. Tuberculous lymph nodes have been excised from the axilla, but there is no evidence of tuberculosis at the present time.

The second patient (see photograph, Fig. VI) suffered from neglected empyema, the pus having perforated the chest wall. A portion of the seventh rib was resected in the posterior axillary line and for nearly four months efforts were made to drain the pleural cavity through this opening and to expand the lung by forced expiration; there still remained a large sinus leading to the apex and a localized abscess was pointing between the second and third ribs. An incision was, therefore, made through the chest wall and small portions of ribs, third to ninth inclusive, were removed; an incision was then made through the thickened pulmonary pleura to the lung from the base almost to the apex. This pleura was stripped back from both sides of the incision; considerable expansion of the lung followed at once and healing ensued within a few weeks.

The results in these four cases correspond fairly well with the observations tabulated by Fowler. The method has without doubt added new possibilities to the treatment of long persisting empyema. Cases have been cured which were not cured by other methods and the deformity is less than that which follows the resection of large portions of the chest wall. It cannot, however, be expected to cure all cases in which the discharge from tubercular foci causes persistent sinuses.

Fatal Cases.—The fatal cases should be studied as a group. They throw some light on the pathology and treatment of the disease, although the possibility of obtaining permission for autopsies in some of them has limited the definite observations and consequent deductions.

Their entire number was eleven. Three were definitely tuberculous. Two others were probably tuberculous. Three apparently died from pneumonia which preceded and accompanied the empyema. One died of pneumococcus peritonitis. One died of intercurrent diphtheria. One apparently died from the effects of the empyema or the bronchopneumonia which it accompanied.

In one of the tuberculous cases a condition existed which is instructive as to the relationship between tuberculosis and empyema. A weak child of four years was admitted to the hospital August 10, 1900, with pus in the left pleural cavity, having been ill for two months. Eight ounces of pus were withdrawn by aspiration; it contained pneumococci, apparently in pure culture. August 14, one and one-half inches of the seventh rib were removed and more pus evacuated. The pleura was much thickened. Two weeks later he was sent to the country branch of the hospital where he remained a month. The discharge continued to be profuse and the lung did not expand. October 15, portions of fifth ribs were removed and the effort was made to strip back the thickened pleura and permit the lung to expand. There seemed to be, however, no line of demarcation between lung and pleura, and expansion could not be obtained.

The portions of the thickened pleura which were excised were examined microscopically, but no evidence of tuberculosis could be found in them; they seemed to be simple granulation tissue. Six months later the child died and miliary tubercles were found in both lungs, tubercle bacilli being stained in the lung tissue.

This is clearly a case of a tuberculous child who developed a pneumococcus empyema, with great thickening of the pleura. The course of the empyema was greatly modified by the tuberculosis, yet if no autopsy had been obtained a certain diagnosis of tuberculosis would have been impossible, although the pus and the thickened tissue on the pleura had been examined microscopically. I believe that this is an example of a type of persistent empyema which is not uncommon, even in children.

In one of the other tuberculous cases there was abscess of the lung, perforation and pneumothorax. In one, tuberculosis of the spine and cervical lymph nodes developed in addition to that in the lung. Of the two cases which are classed as probably tuberculous, one had a sinus which persisted nearly two years and developed evidences of amyloid degeneration of the internal organs. The other had a cough before the empyema developed and lost in strength continually during the three and a half months, while the discharge from the empyema lasted.

All the three patients who are recorded as dying of pneumonia had pneumococci in the pus which was taken from the chest, and in all the pneumonia preceded the empyema and probably was never entirely absent from the lung. In one instance death occurred twenty-one days after the operation, and at the autopsy both lobes of the lung were found to be consolidated. In the sec-

ond the symptoms and physical signs were similar, the child living only eleven days after the operation. The third patient had only a circumscribed empyema, but the evidences of pneumonia persisted and a fatal result followed in twenty-one days. One patient died of intercurrent diphtheria six weeks after operation. One patient died of pneumococcus peritonitis, a condition which is common enough to be borne in mind whenever there is pneumococcus inflammation. There have been three instances of it in the hospital within two years.

The eleventh patient, a child of four years, was brought to the hospital in a condition of very great prostration, gasping for breath, eighty-two times a minute; temperature 103° F.; pulse 124. The pus was liberated by an incision between the ribs, which was made without narcosis. Death occurred three days later, presumably from the effect of empyema and the pneumonia with which it was associated.

The study of these fatal cases impresses one with the importance of considering the diseases of which empyema may be a complication. In many instances it is not to be treated as a disease by itself. It exists as a complication of tuberculosis with a frequency which increases with the age of the patients. It exists as a complication of pneumonia in a large proportion of cases. The pneumonia which usually precedes it does not always cease before the empyema begins, and may pursue its peculiar course, involving one part of the lung after another while the empyema exists. If the pneumococcus inflammation involves the peritoneum, the pericardium, or a joint, or one or more of the bones, we have still further complications which may be of the utmost gravity. In this series of cases there were no complications in the cases of streptococcus empyema, but one must always bear in mind the possibility of such an occurrence.

It is evident that treatment which is based on a single line of procedure must fail to meet the requirements of patients who are really suffering from different lesions, and that the scope of treatment should be sufficient to meet the different pathological conditions which exist.

Ultimate Results.—Many of the patients have been examined at various periods after the operation. The group of forty *simple cases* were all in good condition when they left the hospital; twenty-seven of them have been examined since that time; eleven four to seven years afterward; ten one to three and a half years afterward; six three to nine months afterward.

One patient who was seen five and a half years after operation had developed phthisis. All the others were in good general health; they had good chest expansion and good respiratory murmur, and no noticeable lateral curvature of the spine. Chest measurements were made of nine of them and in no instance was there a difference of more than half an inch in the circumference of the two sides. The average difference was less than one-quarter of an inch.

The group of twenty-four protracted cases gave the following record: Seventeen have been seen since leaving the hospital; one has died since leaving the hospital; six could not be traced; five were seen four years or more after leaving the hospital; one was seen three years after leaving the hospital; three after two years; five after one year; three, respectively, ten, seven and one and a half months.

Thirteen of them had good chest expansion and no lateral curvature, or only slight lateral curvature. Four had marked retraction of one side of the chest and marked lateral curvature. Two of the latter had each a small discharging sinus when last seen.

The late examinations of these patients are most encouraging. The finding of so many of them in good health is most gratifying and justifies us in giving very favorable prognosis in these cases.

Recovery after a simple empyema seems usually to be complete; no noticeable difference remains in the chest.

In the protracted cases the resulting chests are much better than might be expected. In more than three-quarters of them the resulting deformity did not interfere with good health and a moderately active life.

Summary.—(1.) For simple cases of empyema the folowing treatment is used: Excision of about one and a half inches of the seventh or eighth rib in the posterior axillary line; light ether anesthesia is usually employed; the purulent coagula are removed; short rubber tubing, cut partly across, doubled and held by large safety pins, is used for drainage; abundant gauze dressing is applied and changed when saturated.

(2.) If the patient's condition contra-indicates general anesthesia an incision into the chest may be made between two ribs under cocaine anesthesia.

(3.) Aspiration is only used to give temporary relief in patients who are in great distress from the pressure of the fluid, or temporarily to relieve the second side of a double empyema after the first side has been opened.

(4.) The patients are allowed out of bed as soon as is practicable, and the expansion of the lung is encouraged by forced expiration.

(5.) Irrigation is only used where there is a foul smelling discharge from necrotic lung tissue.

(6.) Secondary operations are not done until good opportunity has been given for healing; usually three or four months should have elapsed after the primary operation, and there should have been no noticeable improvement for about a month.

(7.) In the secondary operation the expansion of the lung should be encouraged by incising, stripping back, and, if necessary, removing portions of the thickened pulmonary pleura.

(8.) The examination of forty-four of the patients at long periods after operation indicates that recovery is usually complete in the simple cases, and that there is surprisingly little deformity in most of the severe cases.

PATHOLOGY OF EMPYEMA.

BY DAVID BOVAIRD, JR., M.D.,
OF NEW YORK.

As indicated by the cards of announcement, the facts and opinions of the writer relative to the pathology of empyema are based upon observations made in the autopsy room of the New York Foundling Hospital. The material at hand includes a total of 101 fatal cases of empyema in children ranging in age from seventeen days to eight years. It is to be remembered that more than two-thirds of the wards of this institution are cared for by nurses outside the institution in various parts of the city and its environs. Whatever seems remarkable or unusual in the observations is therefore to be accounted for, not so much upon the basis of the conditions peculiar to large institutions for children, as to the age of the patients upon whom the observations were made.

Empyema is much more frequent both relatively and absolutely in infancy and childhood than in adult life. Witness the following table from Albutt's System:

Effusion	M.	F.	Died	under 5	10 y.	15 y.	20 y.	30 y.	40 y.	50 y.	60 y.	60 y.+
Non-Pur.	465	186	48	25	59	50	54	179	149	85	35	15
Purulent	155	61	48	53	32	15	22	48	17	23	6	0

It is a striking illustration of the neglect of the material for observation and study offered by children that in the face of this fact the prevailing opinions relative to empyema are very largely based upon studies of the disease as it occurs in adults.

The affection is more common in children and is also unhappily much more fatal, so that abundant opportunity is given to study the pathological lesions in such an institution as the New York Foundling Hospital.

It would be a happy result of this meeting if it did but serve to direct attention to the rich field for investigation in this line offered by our clinics and hospitals for children.

By the term empyema we understand a purulent pleurisy, an inflammation of the pleura accompanied by the effusion of serum, fibrin, and pus. The affection is in the majority of cases unilateral, but not infrequently it involves both sides. In our series of 101 cases, 77 were unilateral, 24 bilateral. Of the unilateral 36 were right-side effusions, four left.

Not only is the affection regularly unilateral, but, as a rule, a part, not the whole, of the pleural sac is involved in any given case. Usually it is the pleura covering the lower lobe that is found inflamed. The part of the membrane involved is thickened (swollen), congested, hazy and roughened.

In the rare instances where tuberculosis and empyema are associated, the pleura may be found studded with miliary tubercles. In six of the 101 cases there was tuberculosis of the bronchial lymph nodes or lungs, or both. In only one case were miliary tubercles found in the pleura itself.

The characters of the effusion vary with the proportions of its several constituents, serum, fibrin, and pus. In a small number of cases it is thin, turbid serum, sometimes stained reddish from admixture of blood. In a larger number of cases it is a frank pus of moderate consistency, and of a gray, pale yellow or greenish tinge.

But the most frequent or most typical effusion is the thick creamy exudate, of such consistency that it will not flow, will not sink to the dependent parts of the pleura, but remains plastered like a mortar on the affected area of the pleura, or when the lung is removed it can be scooped out of the open pleura with the hand. These thick exudates regularly have a pale greenish color.

It is proper here to remark that it is impossible to draw a sharp line of division between sero-fibrinous pleurisy and empyema. Possibly effusions such as have just been described do, at times, resolve without the formation of pus, but, as a rule, the thick effusion liquefies and a creamy pus results.

This unusual consistency of the exudate in the empyemata of children is of the greatest importance, especially in relation to diagnosis by aspiration.

The effusion in empyema of children is regularly odorless; in only one of our long series was it strikingly foul.

The effusion is regularly found in the posterior part of the pleura and may be free or shut in by adhesions. Sacculation is much more frequent in children than in later life. Especially are the thick exudates just described likely to be closely shut in.

The location of such sacculated effusions in children is sometimes most surprising. In one case seen last year, and which has been reported in detail by Dr. Holt, in a boy of two and one-half years, whose temperature had run a septic course for several weeks without satisfactory explanation, two small sacculated collections of thick creamy pus, each amounting to from one to two ounces, were found; one on the diaphragmatic surface of the right lung near its anterior border, the other on the left side at the base of the lung and close to the spine. The very last case examined had a sacculated effusion at the apex of the lung behind. I have seen such a sacculated effusion directly beneath the clavicle. Morphologically the effusions contain pus, fibrin, bacteria, rarely blood corpuscles, or endothelial cells from the pleura.

The quantity of the effusion is, in the great majority of cases strikingly small, usually ℥-2, and rarely indeed exceeding ℥-8. In children under the age of eight years, the writer has never seen pleural effusions approaching the large amounts (1,000 to 2,000 c.c., Simmonds; 2,000 to 5,000, Hofmokl) reported by some observers.

So far as our experience goes, the empyemata of children do not perforate either through the

chest wall or in any other direction. In a number of instances small abscesses of the lungs have been found to have ruptured into the pleura, but in no instance has the reverse process been observed.

The writer does not wish to suggest that such perforations may not occur in children but simply to emphasize their rarity on the basis of the experience of the Foundling Hospital.

The condition of the lung in empyema has important bearings, especially in relation to the etiology and prognosis of the pleural process. Particular care has been exercised in investigating this point and the results may be briefly summarized as follows:

The lungs were compressed, without other lesion, in 35 cases and consolidated in part in 56 cases. The consolidation was lobar in 10; bronchial in 27; indefinite in 14; associated with tuberculous lesions (miliary tubercle or tuberculous pneumonia) in 4; associated with small abscesses in 6; associated with gangrene in 5.

The frequency of the occurrence of bronchopneumonia in association with empyema is very striking, as a contrast to the conditions found among adults.

No other importance should be attached to it. Etiologically, as the researches of Fraenkel, Weichselbaum, Kreibich, Wollstein and others have shown, lobar and bronchopneumonia have the same origin; in the great majority of cases the pneumococcus has been found to be the exciting agent of both.

The abscesses found in the lungs in these cases are regularly of the small bronchiectatic type.

The gangrene of the lung was usually secondary to diphtheria or some other septic process about the mouth or throat.

Naturally it is not possible to definitely classify these consolidations with reference to their time relations to the empyema.

In some instances the consolidation is marginal in the portion of the lung compressed by the effusion and it would seem proper to infer that it was secondary to the empyema. Clinical experience, as well as our knowledge of the routes of infection for the pleura, would lead us to believe that in the great majority of cases the pulmonary consolidation was primary.

The number of cases in which the lung presented no lesion but compression (35 per cent.), is striking. Nor will it do to explain away this high percentage on the hypothesis that a pulmonary lesion had been present before the empyema but had resolved before death. The great majority of these cases have been so acute and fatal within such brief periods (even two or three days) that we must believe that the conditions found at autopsy were substantially those present during life.

The associated lesions of empyema, apart from those of the lung, are essentially acute inflammatory lesions of the other serous membranes. These were found as follows: Acute pericarditis, seropurulent, 11 in all; nine times alone; once with meningitis, and once with peritonitis; acute miningitis, three in all; two alone, and one with pericarditis; acute peritonitis; once with pericarditis.

While the frequent involvement of the pericardium is readily explainable by its close juxtaposition, the association of the meningitis indicates an infection by means of the blood with some special susceptibility of the serous membranes.

Bacteriology of Empyema.—Netter's results were as follows: In 109 cases, 28 in children, eight in adults, he found:

Pneumococcus, children, 53.6; adults, 17.3; pneumococcus and streptococcus, children, 3.6; adults, 2.5; streptococci, children, 17.6; adults, 53.0; staphylococci, adults 1.2; tubercle bacilli, children, 6.5; adults, 25.0; saprophytic organisms, children, 18.7.

Koplik found in twelve cases in children: Pneumococcus alone, 7; streptococcus, 3; staphylococcus, 1; tubercle bacillus, 1.

Prince Ludwig Ferdinand in twelve cases found: Pneumococcus in 2; streptococcus in 5; tubercle bacillus in 2; pneumococcus and streptococcus in 2; streptococcus and staphylococcus in 1.

Pansini found in eight cases: Pneumococcus in 2; tubercle bacillus in 2; streptococcus in 1; staphylococcus in 1; pneumococcus and tubercle bacillus in 1; sterile in 1; total, 8.

Prudden found in twenty-four cases: (1) Simple cases, 8; streptococcus, 7; staphylococcus, 1. (2) Metapneumonic cases, 11; pneumococcus, 9; streptococcus, 1; staphylococcus, 1. (3) With tuberculosis, tubercle bacilli, 1. (4) Fetid exudates, 4; several forms of bacteria, not identified; staphylococcus, 1.

Holt found nineteen cases in children: Pneumococcus, 14; streptococcus, 3; pneumococcus and streptococcus, 1; staphylococcus, 1.

It has, therefore, been shown that in children the great majority of empyemata are due to the pneumococcus. It is also known that the pneumococcus is regularly associated with the thick creamy exudates above described. In the cases where the fibrin is less abundant in the exudate, which is therefore thinner, the streptococcus or stapyhlococcus are regularly found.

A much debated question in relation to the bacteriology is the frequency of the tubercle bacillus. It is a safe assumption that in children at least, primary tuberculosis of the pleura (that is, tuberculosis of the pleura without preceding lesion elsewhere) is extremely rare. In our series of 101 cases of empyema we found tuberculous lesions of the body in six only. In two of these they were limited to the bronchial nodes; in the remaining four the lungs and nodes were affected; in one case only were tuberculous lesions of the pleura itself observed. Without bacteriological examination of the exudates, we may infer that at the most 6 per cent. of these cases were tuberculous. In all probability the percentage was somewhat lower.

The points in the pathology of empyema upon which the writer would lay emphasis are:

1. Its frequency in children.
2. The frequency of bilateral cases.
3. The impossibility of drawing sharp distinction between serofibrinous pleurisy and empyema.
4. The creamy consistency of the exudate in many cases.
5. The frequency of sacculated effusions.
6. The frequency of pneumonia, especially bronchopneumonia, as a preceding or accompanying lesion.
7. So far as concerns the bacteriology of empyema, the pneumococcus is present in the great majority of cases in children, especially in the thick creamy exudates. The streptococcus or staphylococcus pyogenes is found in a much smaller percentage of cases, especially in those not associated with pneumonia and characterized by thin purulent exudates.
8. Tuberculosis is present in but a small per centage (6 per cent.) of cases.

BRONCHIECTATIC ABSCESS OF THE LUNG; WITH THE REPORT OF A CASE TREATED SURGICALLY WITH SUCCESS.

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DILATATION of the bronchi may develop at any age. A single case of congenital bronchiectasis has been reported.[1]

When a bronchiectatic cavity becomes of such shape that it ceases to be well drained its contents become putrid and a bronchiectatic abscess results. The causes of bronchiectasis are diminished resistance of the tissues following prolonged sickness and extra strain from chronic cough of any kind. Sometimes the element of strain seems to be the sole cause, as in Borchert's[2] autopsy, where stricture of a primary bronchus was found on the left side, with several large bronchiectatic cavities in the left lung.

Cases in which a tumor or an aneurism presses upon or a foreign body partially occludes a bronchus come under the same head. The majority of cases, however, develop after bronchopneumonia in some of its forms, sometimes associated with tuberculosis of the lungs or bronchial glands, and under these conditions diminished resistance and increased strain of the tissues are both present as possible causes.

Bronchiectases are described as either simple fusiform, cylindrical, or sacculated. The fusiform is the commoner variety and in it the condition is apt to be more general throughout the lung than in the saccular form. In the saccular form single or multiple cavities more or less localized are the rule, but the condition is so often coincident with fusiform dilatations in other parts of the lungs that the two forms seem to be earlier and more advanced stages of the same process.

Tuffier[3] found that both lungs were involved in about half the cases, but that one was usually more extensively involved than the other. Sacculated dilatations in both lungs have been rarely found. The walls of bronchial dilatations are usually infiltrated with round cells; the epithelium is desquamated and the cartilages sometimes disappear. The contents of the cavities may become infected and the sputum expelled from them intolerably foul, the condition being a bronchiectatic abscess.

It is with the infected saccular bronchiectatic cavities that surgery has to deal. The symptoms of bronchiectasis include a chronic cough occurring in paroxysms and resulting in the expectoration of a mass of mucus, pus and sometimes blood. This is frequently accompanied with vomiting. If sacculations exist the retained pus may become fetid and septic, so that secondary symptoms of pus-intoxication are presented. Loss of flesh is not marked. Irritability of temper is frequent. The onset of bronchiectasis is insidious, usually following some disease accompanied with chronic cough, as bronchopneumonia, whooping-cough, or latent phthisis; so that all that can be obtained by way of history is the fact that subsequent to the primary disease the patient has for many months had paroxysmal fits of coughing, possibly occurring only in the morning and ending with expectoration of an ounce or two of extremely viscid mucopus. Ordinarily the attacks of cough are more or less regular in their time of recurrence, being apparently brought on by overflowing of the comparatively insensitive cavities, the pus causing reflex cough as soon as it reaches and irritates the normal mucous membrane of a bronchus. Irritation at any time is apt to bring on a spasm which differs from the regular paroxysms only in the quantity of matter expectorated. The sputum contains pus, bronchial casts, crystals and sometimes blood. It varies in odor from a sickly sweetness to a fetor so foul as to make the whole room or ward which a patient occupies unbearable for others. The odor is noticeable at all times in the breath and especially during coughing.

The principal conditions from which bronchiectatic abscess must be differentiated are: (1) Tubercular cavities, (2) lung abscess, (3) gangrene of the lung, (4) actinomycosis, (5) hydatid cysts.

1. Differentiation from tubercular cavities may be impossible, as pulmonary tuberculosis may be coincident with bronchial dilatations.[5] The presence of tubercle bacilli in the sputum would not exclude bronchiectasis, but their absence in a case with slight fever and general bronchitis and in which the cavity formation was apparently not progressive would confirm the diagnosis of its bronchiectatic nature. Comparatively good nutrition of a patient having a cavity of long standing would tend to exclude a tubercular process as the cause of the cavity.

2. Bronchiectatic abscess must be distinguished from abscess of the lung by the extremely coarse,

moist râles which usually occur throughout the bronchiectatic lung, even in the lung which has no cavity; also by the long history in bronchiectasis contrasted with the acute history and high temperature and more marked sepsis of pulmonary abscess. The existence of pyemia or the history of some previous operation which may have given opportunity for metastatic infection suggests pulmonary abscess. The pus expectorated from a pulmonary abscess may contain particles of lung tissue and may be less fetid than in bronchiectasis.

3. Gangrene of the lung would be excluded on grounds similar to those excluding abscess, except that the foulness of the odor is greater; the abscence of the general symptoms peculiar to bronchiectasis being the main point.

4. In actinomycosis of the lung, unless the cavity communicated with a bronchus, no purulent sputum would occur, hence there would be no confusion of symptoms. If an opening did exist a bacteriological examination of the sputum would settle the diagnosis.

5. Hydatid cyst of the lung is rare. If it existed with an opening into the bronchus, characteristic hooklets would be detected microscopically; if there was no opening, it could not be confounded with bronchiectasis.

At times differential diagnosis before operation may be impossible, but in these cases if localization of a pus-containing cavity can be accomplished the treatment should be the same. If a cavity containing parasites or putrid material or pus can be localized it should be drained. Means for localizing the cavity are auscultation, percussion, aspiration and the X-ray. None of these methods are exact, but in many cases they have been sufficiently helpful to enable operators to find the cavities.

The physical signs vary according to the condition of the tissue surrounding the bronchi. The percussion-note after a bronchiectasis has been recently emptied by cough is tympanitic, though it may be muffled by peribronchial infiltration. By auscultation coarse bronchial râles and respiratory sounds varying from bronchial to amphoric are heard throughout the thorax. The extremely coarse, moist râles of a typical case are so characteristic as to be easily recognized if they have once been heard.

Aspiration is of great value. The needle, which easily becomes plugged in passing through the consolidated peribronchial tissue, must be cleared, and care must be taken to prevent having the cavity emptied by the spasm of cough which the pain may provoke. What seems on percussion to be a single fair-sized cavity may really be two small ones with a solid portion of lung between, into which the needle[3] may pass. In one of Tuffier's cases it was proved at autopsy that the exploratory needle, avoiding both cavities, had passed directly into such a partition. Aspiration may be practised both before and after thoracotomy, and in the latter case, if once the cavity is found, the needle should not be withdrawn, but should be left as a guide until the cavity has been effectively opened.

I have found the report of but one case of bronchiectatic abscess in which the X-ray was used.[5] Borchert used the X-ray in one of his cases of multiple bronchiectatic abscess; the shadow was very general and he considered it due to peribronchial inflammation. The diagnosis was verified after death. He did not consider the X-ray very helpful. Williams[8] located an abscess of the lung by means of the X-ray and Monks evacuated pus and gas.

Tuffier has employed radiography of the lungs for localization of various lesions; in four cases the result was positive; in one case it was doubtful, and in three cases it was negative. The negative cases were: (1) A living hydatid cyst; (2) the patient was a child of six years; (3) intralobular pleurisy in which shadow got behind the cardiac dulness. Placing with these my own case, we have the X-ray positively helpful in six out of 11, doubtful in two and negative in three. With improved technic in the use of the X-ray and skill in interpreting radiographs, the percentage of positive results should increase.

A more radical method of exploration has been practised by Tuffier, which is described as extrapleural palpation of the lung. By resecting one rib and then freeing the costal pleura from the inner surface of the adjoining ribs he was able to stretch the pleura sufficiently to palpate the lung without rupturing the pleura. He succeeded in finding the abscess and leaving the pleura adherent, and was able to open the abscess without opening the pleural cavity.

Having determined the existence of a cavity connected with a bronchus, and having determined its position by percussion before and after violent coughing, by auscultation, the Roentgen ray and, if possible, successful aspiration, we have to decide on treatment. The medical treatment includes the inhalation of creosote,[10] carbolic acid, or thymol, or the injection of menthol and guaiacol in olive oil. All these methods are unsatisfactory.[11]

The surgical treatment includes: (*a*) Drainage through the bronchus, brought about by compressing the lung, allowing aseptic air or nitrogen gas to enter the thoracic cavity through a hypodermic needle during inspiration (Murphy[4]). This operation is repeated on alternate days. Manual compression of the lung through the thoracic wound has also been suggested. (*b*) Drainage through the thoracic wall, external drainage.

The first step in any pneumotomy is to excise a portion of one or more ribs, the number to depend on the strength of the patient and on the exactitude with which the cavity has been localized. If several ribs are to be excised the U-shaped incision of Schede or a succession of parallel incisions over the ribs may be used. After excising the rib or ribs, leaving the periosteum in

the usual way, any one of three conditions of the pleural cavity may present itself—a normal pleura, an adherent pleura, a pleura containing pus or fluid. The pleural cavity may be normal and yet an abscess exist in the lung.

Tuffier[8] believes that in 87 per cent. of all septic conditions in the lungs there are adhesions over the focus, but it is impossible to be sure of this from the history. For example, in one case of Quincke,[6] in gangrene of the lung of 12 months' duration, no adhesions were found. In bronchectasis adhesions are seldom found. Where the pleural cavity is normal it should not be opened if avoidable, for fear of infection or of collapse. The death-rate of lung abscesses operated upon by the open method in cases of uninflamed pleura is very high. If the pleura is normal we can occasionally see the moving lung through it. Adhesions may be produced by packing the wound with a mild irritant, as dry sterile or iodoform gauze. (The earlier writers applied irritant pastes to the pleura.) Or the pleural cavity may be opened and the lung seized and stitched into place by attaching the pulmonary pleura to the costal. In this method deep sutures should be avoided for fear of entering septic portions of the lung.

If the lung is found to be adherent, or if adhesions have been artificially produced, the accomplishment of which requires from three to eight days, we may localize the abscess by the aspirating needle and then with the needle as a guide cut into the lung. This may be best done with the Paquelin cautery at red heat. Beck[7] has employed a fine cautery point which fits into a grooved platinum director as a trocar fits into a canula. The lung may also be divulsed or cautiously cut, vessels being detected by palpation and when found controlled with curved needles carrying ligatures. Personally, I feel that the low-heated cautery is the best instrument. Owing to the amount of fluid in the lung tissue, progress by this method is very slow. But if the instrument is frequently withdrawn and burned clean the result is satisfactory. Any attempt at haste, by using greater heat, results in loss of time from hemorrhage and increased oozing. After reaching the point at which the aspirating needle detected pus, the burning should be stopped, even if no cavity has been encountered and the wound packed with gauze and dressed like an empyema wound. Good results may be accomplished even when the cavity is not opened at operation, as in Oehler's[9] case of gangrene of the lung, in which incision of the lung by thermocautery to the depth of five cm. was done without reaching pus. Two days later the pus broke through the wall of the cavity into the wound. The successful cases have healed completely in from two and a half months to two years.

Of cases of bronchiectatic abscess, Borchert had one cure and four deaths, but this does not represent a fair percentage, as three of his patients were tuberculous and had other lesions.

The objections to surgical treatment are: That the condition is more or less general; that the localization is obscure; that even if one or more putrid cavities are obliterated others may form, owing to the general impaired resistance of the bronchial walls; and lastly, the dangers incident to all operations. The points in favor of operation are the following: The foul smell which disturbs the patient and his friends can be removed; the nauseating taste of the pus during expectoration is no longer present; the frequent vomiting ceases; the quantity of sputum is diminished; and, most important of all, the septic focus which may lead to metastatic abscess in other organs, including the brain (Osler,[11] Borchert,[5]), is obliterated and the danger of fatal complication removed. Besides these more or less specific advantages, the general malaise and slight irregular fever due to absorption is cured by the destruction of those cavities which have become septic.

In the case which I show this evening these gains have accomplished such improvement in nutrition as to give promise of no further recurrence, and have so changed the whole character of the patient's nutrition that, though she still has bronchiectasis throughout both lungs, there is absolutely no fetor to the sputum and no disagreeable odor to the breath.

N. E., aged three, was admitted to the Babies' Ward June 18, 1901; weight, 25 pounds; temperature, 99° F.; pulse, 120; respiration, 40. Her mother's report was that 14 months previous (April, 1900) the child had bronchitis and was treated at various dispensaries. The cough persisted for over a year. The odor was very foul all the time; so much so, indeed, that the mother could not get any one to clean the child or even to stay in the room with her. She had frequent "feverish spells," was slightly but progressively losing flesh, coughing frequently, and raising large quantities of pus, sometimes blood-streaked, of horribly foul odor. The general appearance of the child was good. The tongue was slightly coated. There was cavernous breathing over the right side, around the angle of the scapula, and below it an area of two inches in diameter, with metallic râles. Coarse mucous râles were heard all over both sides of the chest.* Aspiration of the seventh right interspace gave a thin, purulent fluid of very foul odor. The radiograph† shows a questionable area at the point of aspiration.

Operation.—First stage, June 28, 1901: Resection of 1½ inches of eighth rib on right side midway between the vertebral column and the posterior axillary line. Iodoform gauze strip was introduced to cause pulmonic pleura to adhere to the costal pleura. The pleural cavity was not opened.

Second stage, July 1, 1901: Pulmonary pleura and lung found glued to the costal pleura at the point where the rib had been resected. Aspiration was done twice, the second attempt to locate

* The physical examination was made by my colleague, Dr. Maisch, to whose courtesy I am indebted for the case.
† By Dr. F. N. Wilson.

pus proving successful. The thermocautery was then used with the aspirating needle as a guide and the lung tissue was burned to the depth of about 1¼ inches. A medium-sized bronchus was opened, as shown by the appearance of bleeding at the mouth. It could not be definitely determined whether there was more than one cavity, as the wet lung tissue shriveled against the cautery and was drawn to it as it contracted under the heat. A rubber tube wrapped with gauze in the shape of a peg-top was inserted and covered with a loose gauze outer dressing. The condition of the patient after operation was good. For about one week she coughed up less and seemed better, but on the twelfth day she expectorated about 1½ ounces of mucus and pus and after this coughed up a good deal of pus daily, frequently vomiting at the same time. For some days the patient suffered from diarrhea and was treated for that without regard to her thorax, but on July 20 a third stage of the operation was performed, consisting of more extensive cauterization. At this operation the principal cavity was evidently opened and later obliterated, for from that time no more foul pus was expectorated and the thoracic wound rapidly closed. Healing was complete the first week of September, 1901.

Mother's statement eight months after the operation, April, 1902: "She coughs up some every morning, but it never smells bad; it used to be awful to be in the room with her. She used to mope around and be different from other children, and now she plays and runs all day."

The amount of mucus raised mornings was found to be about half an ounce. The extremely coarse râles were still present, showing that the general bronchiectasis was not in any way improved. There was no odor to the sputum.

Conclusions.—Whereas the cases reported by Borchert, varying in age from twenty-one to fifty-two years, resulted in four deaths (one three months after operating) and one cure (requiring two years for healing of wound) making the outlook for adults seem bad, the great improvement in the case shown and reported tonight, even though not necessarily permanent, certainly justifies operative interference in cases of bronchiectasis which have progressed to abscess formation. Analysis of Borchert's cases shows that the long standing of the disease and the ravages revealed at autopsy were the causes of the fatal result, and they only emphasize the importance of early diagnosis and operation.

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A CASE OF HEPATIC ABSCESS.*

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THE interest of the case which I have to report depends largely upon the fact that the abscess developed in a puerperal woman, the septic condition produced by it being so like puerperal fever as to cause great anxiety and many misgivings until a positive diagnosis became possible and it was proven that the infective agent had not gained entrance by way of the parturient canal.

Mrs. M., aged twenty-two years, primipara. Had been well except that for about four years previous to pregnancy she had suffered from attacks of what she described as "stomach trouble." For these she had received treatment for a time by a physician in a neighboring town, but finally abandoned it as it seemed unprofitable. She does not remember that pain at this time was referable to the right side. She thought it was chiefly in the stomach and in the back, but it was paroxysmal, and it seemed quite possible that the symptoms may have been due to a cholelithiasis.

During pregnancy there were none of these attacks. For the first four or five months she suffered much from nausea, but otherwise felt well.

I first saw her during the seventh month when she came to engage my services for her confinement. I found the pelvic measurements normal; the kidneys were acting well, as they continued to do throughout the period of gestation, and she was in good general condition.

On July 17, 1901, she gave birth to an eight-pound boy after a labor which, though severe, was normal. There was a partial rupture of the perineum which was sutured. The stitches were removed on the fifth day, the tear having healed nicely. For a few days after delivery there was difficulty in emptying the bladder and a catheter was used. There was no fever at any time up to the tenth day. I visited her July 26 and found temperature and pulse normal and the patient feeling so well that she asked to be allowed to get up, which request was not granted.

On the morning of the 27th she complained of pain in the right side and back, in the region of the liver, and of a general malaise. I was sent for that evening. Severe, lancinating pain had come on suddenly in the afternoon, accompanied by vomiting. When I reached the place the acute pain had subsided, but there was marked tenderness in the region of the gall-bladder. The patient had been unable to lie on the left side since the morning, and was most comfortable when lying on the right side. Pulse 120, temperature 101° F. I could find no tumor and did not succeed in palpating the liver. A thunder-storm kept me at the house during the night. About two A. M. there was a severe rigor, followed by a temperature of 105°, with profuse sweating. That there was pus was evident, and it seemed to be in the right hypochondrium. The fact of

* Read before the Nebraska State Medical Society, May 7, 1902.

her recent delivery led to fears that the uterus might have been the original source of the infection,but I was unable to find anything in its condition or anything in the pelvis to indicate that such was the case. Pain and tenderness were wholly confined to the region of the liver, and, after the first day, were more marked posteriorlv than anteriorly. After that time pain was not a prominent symptom, being felt only upon moving or taking a deep breath. Liver flatness extended as hign as the fourth interspace; there was interference with respiration on the right side and a troublesome cough developed. There was no bulging of the intercostal spaces. Neither my husband, who saw the case with me, nor I, could make out any downward enlargement of the liver. There was no swelling nor was there anything which seemed to indicate the exact location of an abscess or abscesses if such existed. The patient was sallow but there was no jaundice. Pulse remained constantly above 100 and was not often below 120. Temperature ranged between 100 and 104° F. Sweating was profuse when the patient slept or was moved; vomiting was a distresing symptom, and on the 29th there was a persistent hiccough.

Treatment was directed chiefly toward securing elimination and sustaining the patient. Calomel with salts or oil, and strychnine were the chief medicinal agents used. Some quinine was given at first, and various attempts were made to lessen the irritability of the stomach. Sedatives were given occasionally to induce sleep, but after the first day the pain was not severe enough to require an opiate. High enemata of salt solution were given several times daily, and frequent sponge baths were ordered. Exploratory puncture was talked of, but the family was averse to anything that savored of an "operation" and the indications as to the best place for aspiration were so obscure that we hesitated about trying it.

On reaching the place on the morning of July 30 I found decided improvement in the condition of the patient and learned that during the night a considerable quantity of bloody pus had been passed by the bowel. Those in attendance said that she had also expectorated material which had a similar appearance. None of either discharge had been saved and there was no more expectoration, the cough gradually subsiding, so that one can only surmise that the abscess may have ruptured both into the lung and into the intestine. Pus, containing blood-flecked masses, continued to pass by the bowel, and it proved to be full of what, under the microscope, looked like microtome sections of liver in a state of cloudy swelling. After a large amount of this pus had been discharged, a black sand began to pass, a large quantity passing with each stool for several days. This seems to furnish a clue to the original irritant.

Although improvement was rapid I did not give a very favorable prognosis, especially as to the time likely to elapse before the patient could hope to be well. What I was able to glean from the literature led me to believe that, at the best, recurrences might take place for many months, if not for years. By August 5 the pulse and temperature were normal, the appetite had returned and the patient was gaining strength and feeling hopeful. There was no longer pus nor sand to be detected in the feces. This state of things continued till the 11th when there was a chill, followed by a recurrence of the original symptoms, only in a milder form. With the use of oil and enemata there came again a discharge of pus containing liver tissue, and this was followed, as before, by the gall sand. Twice thereafter, with intervals of a few days these attacks recurred, the discharge of sand being preceded each time by that of pus. The family having learned the significance of these attacks and knowing what to do, I did not see the case after August 16 until the 31st when I was called because the patient had had chills and fever for several successive days, with intervals in which she felt quite well. This proved to be a malarial attack and yielded readily to quinine. There was no further accumulation of pus, the last having been seen in the third week in August. At intervals of two or three weeks she passed and still passes the black sand. For a time this was preceded by a day or two of what the patient believed to be fever, and was accompanied by more or less pain. Now the prodromal period consists of a day or two in which there is possibly slight fever, but nothing that amounts to pain, only a sense of fullness and discomfort in the right hypochondrium which disappears with the discharge of the stones.

At a time of which the family is uncertain, but which they think was last November, there were passed at two different times in advance of the sand, stringy masses which they describe as looking like pieces of emptied intestine, but consisting partly of a "gristly" material. These were bottled with the intention of bringing them to the office, but were later destroyed. They were doubtless the remains of the pus sac and the inflammatory exudate thrown out in connection with the rupture of the abscess into the colon. That the rupture was into the colon rather than the small intestine the unchanged condition of the blood and liver tissue evacuated seems to show.

By the middle of October the patient was able to do her own work and care for the baby, and she is now well and strong and free from the attacks of the "stomach trouble" of which she formerly complained. What to do about weaning the baby was a question that caused considerable anxiety and must, I think, always do so under similar conditions. The course pursued seems to have worked well in this case, but I should feel doubtful if confronted with similar conditions. During the height of the septic condition there was almost complete suppression of the flow of milk and the child was given artificial food, but there were only one or two days when it was not put to the breast at

some time. Efforts were made to keep the milk and except for a short time preceding the first evacuation of the abscess, the baby was compelled to take what little there was before being given other food. By the time he was three months old no artificial food was needed, and he has grown and flourished as he did not do when fed chiefly with modified cow's milk. Some of the relatives of the patient disapproved of this course, but she herself was anxious to nurse the baby and both parents are now very thankful that he was not weaned.

Did the biliary concretions which seem to have been the exciting cause of this abscess form in the gall-gladder and rupture into the liver or did they originate in the liver?

C. W. Allen in the *Reference Handbook of the Medical Sciences* says that while "the gall-bladder itself is by far the most usual portion of the excretory system of the liver in which calculi originate * * * they may form at any point along the bile passages, even to the very commencement of the hepatic ducts." It would seem that the size and form of such concretions might furnish some indication as to their probable source, and that sand might be more likely to originate in the smaller hepatic ducts than the larger stones, but I find no statement that such is the case.

Another question which arises in connection with the case is, to what extent, if at all, were pregnancy and the puerperal state etiological factors? Since Osler states that "three-fourths of the cases of gall-stones occur in women," and quotes Naunyn as saying "that 90 per cent. of women with gall-stones have borne children," it seems highly probable that pregnancy may be an important causative factor, and that it was such in this case. By furnishing conditions in which the power of resistance of the tissues was lessened, the puerperal state may have had something to do with the pus formation, but that it was not responsible for the entrance of the pus organisms is shown, I think, by the history of the case.

THE USE OF SIMPLE MICROSCOPICAL METHODS BY THE GENERAL PRACTITIONER.*

BY ROBERT L. PITFIELD, M.D.,
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IT has been said of the late Dr. Geo. B. Wood of this city that on being called in by another practitioner to make a diagnosis for him, he paused at the doorway of the sick room and making a brief survey of the patient, said: "Doctor, your patient has pneumonia," and then proceeded to confirm this diagnosis by the then newly discovered and applied arts of percussion and auscultation.

It is possible in these days for many to stand at the doorway and make a diagnosis of pneumonia, but before the diagnosis can be confirmed not only must these arts be used but a close analysis of the sputum, blood, urine, etc., must be made, and perhaps the Roentgen rays used; and what looked like a pneumonia from the doorway may be more like an endocarditis when we begin to auscult and percuss, and like a septic infection when we examine the blood with the microscope.

It is the age of refinements in medicine, and upon such refinements as the finding of the tubercle bacillus in sputum, or urine, great principles of pathology, diagnosis, and treatment depend. And these refinements in medicine of to-day are so very essential to at least one department of medicine, viz., that of diagnosis, that one cannot conscientiously practise either general medicine or any specialty without being very near the means of employing them. In short, the microscope must be called in daily to help out in the diagnosis of disease. If one would keep abreast of the times a microscope should be in one's own house, and it is a great comfort to have easy recourse to microscopical methods in emergency. The great aid often rendered to a worried and busy doctor by a five-minute consultation with a good oil immersion lens is often of such assistance in relieving his mind that I might have called the title of this paper the "Comforts of the Microscope."

By means of the histories of very simple cases in every-day practice, I hope to illustrate the value to the general man of certain easy short methods. I have merely sketched the outlines of the history of these patients and will not enter into the minutiæ which are so apt to obscure the salient features of the diseases and their outlines.

A certain amount of technic is necessary, but what I have to describe is of a very simple nature. A good microscope is, of course, the most important requisite. A good American stand will do all that any physician needs. Such a stand with immersion lens and Abbé condenser costs between $80 and $90; this being the greatest expense. A few slides, cover glasses, stains, and reagents, costing at most $20, are needed; a steady table with drawers, a centrifuge, a north light and a Welsbach light are also desirable. A good text-book, such as Mallory and Wright or Simons, will complete the equipment. If one wishes to extend his powers of clinical diagnosis beyond the simple methods described in this paper, a blood-counting apparatus, hemoglobinometer, and stains for differential blood-counting, also a simple microtome will greatly add to the usefulness of the physician as a diagnostician, for every patient, no matter how poor or obscure, has the right when he consults a doctor to have his ailment ferreted out to the last degree by every method known.

Perhaps the most useful of the few methods which I will describe is the examination of sputum for tubercle bacilli. An injection of tuberculin might make the diagnosis for one, but this is not nearly as simple as the examination of the excretion. To find the tubercle bacillus in sputum it is best to have some of the saliva that

* Read before the North Branch of the Philadelphia County Medical Society, April 17, 1902.

has been coughed up in the morning, after the mouth has been rinsed with water. A large nummular mass, if present, should be selected, and by means of a wire a small portion, about as big as a match head, may be lifted out and spread on a clean slide. It should be spread evenly and thinly and when thoroughly dry should be heated about twenty seconds in a bunsen or alcohol flame, to bake the dried sputum fast to the glass. It may then be stained with the following, which is the simplest way of making carbol-fuchsin:

A level teaspoonful of dry fuchsin is added to a four-ounce bottle containing a tablespoonful of alcohol and enough 5 per cent. carbolic acid solution is added in water to fill the bottle. A shake or two complete the solution and the stain is ready for use. To stain the sputum cover the slide with carbol-fuchsin and twice bring it to a boil over the flame; this stains everything a brilliant red. To demonstrate the red tubercle bacilli in such a red background being impossible it is necessary, therefore, to decolorize the background, and this is done by washing in water and treating the red-stained sputum with 20 per cent. sulphuric acid in water for a minute or two. This washes the color from everything but the tubercle bacillus. To study the background and to bring out the tubercle bacillus more prominently it is well to stain for a minute in the cold with Löffler's blue, which is made by adding seven ounces of saturated solution of methylene blue in twenty-eight ounces of 1-10,000 potassium hydrate solution in water. These solutions can be made by any competent druggist. The carbol-fuchsin should be renewed every six weeks. The whole process hardly takes more time than the reading of the description of it, after one has practiced a little.

If the case is tuberculous tiny rods of bright red color stand out on a blue field. If after at least six such examinations, if the case is a very suspicious one, and the tubercle bacillus is not found, one may safely assume that the disease is not tuberculosis of the lungs.

The following cases illustrate the fallacy of relying on physical signs alone and of the value of sputum examination:

Mr. X., a young man of twenty-five, of a fair family and good personal history, consulted me for a slight cough, malaise, feverishness and loss of appetite; he looked thin and was flat-chested. He dreaded tuberculosis and begged me to examine his chest, which I did most carefully. After a prolonged and painstaking search I could find absolutely nothing of any pathological import. There was deficient expansion but no change in respiratory sounds, or relative rate to lead one to suspect tuberculosis or any other disease of the lungs. His condition being poor and there being some cough I examined a small bit of sputum raised with difficulty. It was slightly blood-tinged and yellow. On examination by the method detailed, I found a tubercle bacillus and told him so. After this he was examined by six other men, none of whom could find a thing of any diagnostic import in his chest. He was ordered to another climate and has passed entirely from my view.

In depending upon physical signs alone in this case the patient would have had of necessity to remain in this climate until symptoms of consolidation had appeared.

The following is the history in outline of Mr. B., a man aged sixty-seven years, who was admitted to the Germantown Hospital June 9, 1901. He was anemic and emaciated; he had been in good health until some six months previously when he was seized with a cough which bothered him a great deal. It is sufficient to relate that he was growing weaker and more emaciated every day and his cough was becoming worse. He expectorated a great deal. There was no history of hemorrhage. Physical examination revealed dulness on percussion and increased fremitus and bronchial breathing over the entire right lung. There were large and subcrepitant râles everywhere. The left lung was clear, the heart weak but normal in sounds and size. A bruit could be heard over the right apex near the sternum, and aneurism of the aorta was thought of. Dulness in this region was much increased. In short the man had many signs of phthisis, clubbed fingers, constant cough, hectic fever and appearances, anorexia and emaciation. After remaining in the house four months he had a severe paroxysm of coughing and expectorated a piece of turkey bone an inch and a half long and a half-inch wide. Since tuberculosis was previously suspected his sputum had been repeatedly examined, always with negative results. The diagnosis, finally made, was abscess with septic infiltration of the lung with enlargement of lymphatic glands at the root of the right lung simulating aneurism. The patient died and no autopsy could be obtained.

A few test tubes, a urinometer and one or two reagents are not alone necessary in the examination of a patient's urine. He who depends on heat and nitric acid alone in the diagnosis of nephritis is going to make many mistakes. A careful microscopical examination should be made in all cases, and the following cases illustrate the value of such examinations:

Catherine C., five years old, a child previously healthy and of sturdy Irish-American parentage, in May, 1901, began to develop an adenitis behind the angle of the jaw, on the right side. The adenitis seemed to me to follow some attacks of tonsillitis earlier in the spring. When brought to my notice she was pale and fretful and had very little appetite.

Physical examination showed nothing of any pathological nature in the chest and abdomen. She had some fever every evening and had sweats in the early morning. Local and constitutional treatment was of no avail. I saw her constantly for a month and there was a steady decline in health during that period. At length she complained of pain on urination and a dull pain over the bladder. There was some edema which at

first I ascribed to her marantic condition. I examined the urine and found mucus, albumin, pus, casts and many bacilli. I prepared some of the urine by drying and fixing the sediment on a slide and stained it for tubercle bacilli and found thousands of these parasites. Shortly after this a slight cough appeared and an area of dulness was found under the scapula on the right. As is often the case in children I could not secure any sputum for examination.

An intractable diarrhea set in. I examined the stools and found many tubercle bacilli. The child quickly yielded to a generalized infection which I believe began in the tonsils.

That it is possible to have grave uremic attacks with the entire absence of albumin in the urine is a well-established clinical fact. And albumin in moderately large amount may be found in the urine of patients who have never had a headache. The whole matter of urinary examinations, as with many other matters in medicine, is merely relative.

The following case illustrates the value of the microscope in diagnosis of renal disease. It was possible to diagnose this case without recourse to laboratory methods, but the absolute positive knowledge that the disease was nephritis was gained with the centrifuge and microscope.

Mr. H., a gentleman of about sixty years of age, of a previous gouty history of a rather masked character, with exacerbations manifested by slight joint affections and high tension pulse and headache, was suddenly seized in his store in the city with a severe attack of vertigo which lasted for two hours. This was accompanied by a headache, subnormal temperature, and some nausea and vomiting. He rallied somewhat under treatment and was taken home in a carriage to Germantown.

A careful physical examination was made; a tense arterial condition was noted with tortuous temporal arteries, and full vessels between beats. There was no edema anywhere. The heart was examined carefully; inspection revealed diffuse forcible pulsation at the apex, well outside the nipple line and much below the usual situation. The area of cardiac dulness was markedly increased. On auscultation no murmur was detected, but the long booming systole and short accentuated second sound confirmed the diagnosis of increased arterial tension and sclerosis. By most careful examination of the urine I found on measuring it that it was plentiful and of a very pale color and low specific gravity. By Purdy's method of adding salt to the urine and boiling the upper half of it in the test tube a faint haziness was found on one occasion, but this could hardly be called pathognomonic.

Microscopical examination after centrifuging the urine, showed numerous hyaline casts and much uric acid. The urine, I might add, was always hyperacid. By means of sweat baths, dieting, and potassium iodide, the symptoms, such as headache and overaction of the heart, have been greatly ameliorated. The persistent presence of casts in the urine of this patient was the means of making a positive diagnosis.

A similar case is that of Mrs. W., a widow, aged sixty-four years, of gouty antecedent history. She had been troubled some time with cardiac failure which caused extremely irregular pulse, syncope and nausea, with belching of wind from the stomach. Careful examination failed to reveal any cause for this cardiac weakness. There were never, except during the attacks, any dyspnea, or edema, or other symptoms of myocardial degeneration. The area of dulness was slightly increased, but there was little, if any, murmur at the apex. The first sound seemed slightly rough. For a long time numerous physicians had told her that she had simple heart disease and directed treatment solelv to that organ. During a sharper attack of cardiac failure, which lasted for twelve hours, she very nearly died. These attacks were frequent, often as many as two a week afflicted her.

A microscopical and chemical examination of the urine failed to show any albumin whatever, but numerous hyaline casts were seen. Treatment was directed toward increasing elimination and diminishing the nitrogenous elements of the diet and the use of a little strychnine and Basham's mixture, was so happy in its results that for a year she has not had a single syncopal attack. These attacks were evidently renal in causation.

In examining the urine of women one should be careful that vaginal discharges do not contaminate the urine. Important cases should be catheterized. Pus-cells, smegma bacilli, albumin and rarely some rhizopod denizens of the vagina are found in the urine. Those women who have borne children almost always have a few pus-cells in the urine. In pregnant women about to be delivered the urine might give the reaction for albumin in copious amounts and raise grave fears as to the condition of the kidneys. Sometimes the slow leaking away of the amniotic fluid will make the urine, on boiling, resemble that of nephritis. A microscopic examination will revise the diagnosis in such cases.

As already stated the whole matter of urinary examination is a relative one. I have seen an oxaluria cause casts to appear in young people's urine which completely disappeared under some simple dieting and treatment, never to reappear. One should be guarded in prognosis depending upon the finding of a few casts in the urine. The symptom complex should always be the guide.

It is often perplexing to know if pus is gonorrheal or not. A purulent ophthalmia in a child, or a vaginal discharge, may resemble gonorrhea, but a mis-diagnosis can easily be made unless microscopic aid is employed.

A simple smear of fresh pus or solution of dried pus or cotton or linen can be made with great ease; it should be stained with Löffler's

blue. After drying the smear and baking it on the slide for twenty seconds in a bunsen flame, if numerous pus-cells are seen containing within them peculiar little bodies like coffee beans and stained blue, one may generally assume that they are the specific germs of gonorrhea and are diagnostic. In cases of great importance the gram method of staining with iodine should be used, or cultures made.

Last year I had to treat three little girls, all under three years of age, with purulent vaginal discharges.

One had a virulent inflammation which was followed by an arthritis of the knee and in the pus I was unable to find a single gonococcus, but many other septic organisms. The vaginitis in this case was due to seat worms invading the vagina.

The other two cases were infants of two years with virulent vaginitis. Both of them came under my care on the same day and both with the same history. Each had slept with her father and both fathers had some complaint which the mothers stated caused them to have pus-stained shirts. In the vaginal discharge from each child I found gonococci in profusion. I believe that each child was infected from the bed linen.

The differential diagnosis of diphtheria and tonsillitis without the use of cultures and the simple direct microscopic examination is possible in 72 per cent. of the cases seen. The remaining 28 per cent. are as a rule wrongly diagnosed. The cultural method, while it is the very best means of diagnosing diphtheria, should be resorted to whenever possible. It is beyond the use of the general man not within proximity of a laboratory.

The simple method in cases in which there is an exudate that can be reached with a swab is in the hands of the average man even with little practice a very reliable one. It exceeds in reliability any other clinical signs of diphtheria or tonsillitis. The means of diagnosis by this simple method consists in rubbing a swab which has been firmly applied to a suspicious exudate over a clean slide, and then when it is dry fix it for twenty seconds in the flame, and then staining for a moment with Löffler's blue washing, blotting with bibulous paper and drying and then applying a drop of cedar oil and examining it with the immersion lens. If the case is follicular tonsillitis, bacillary forms will not be seen, but the stained smear will present a picture of fibrin and cells over which are strewn myriads of cocci, perhaps in chains if the case is streptococcal infection and singly or in irregular groups if staphylococcus infection. If the case is diphtheria, bacilli will greatly predominate, sometimes associated in cases of mixed infection with streptococci. These bacilli are characteristic. They are always curved and in varying degrees. They are not only bizarre in appearance but are irregular in size. Some stain blue throughout; some will appear barred. In contour some are clubbed at one or both ends and some have slender whip-like ends. This irregularity and the curved shape render their diagnosis rather easy, especially if they have in either or both ends little blackish blue granules or spots. These latter are most characteristic, are easily seen and should be found before one can make the diagnosis. They are found in no other bacilli which lodge in the mouth or throat.

The following case will illustrate the value of prompt and correct diagnosis by this method:

Tony L., an Italian child aged four years, recently came to my attention at the Germantown Hospital. I could learn nothing of his history; he was merely a small child with a very sore mouth. The buccal membrane of the right cheek presented the following conditions. A number of what apeared to be apthous ulcers extended along the mucous membrane from the canine teeth to the last molar. The ulcers were large, and instead of being excavated were full of necrotic white tissue. Opposite the last molar tooth was a gangrenous area about as big as a dime. The throat was not sore and there was no membrane. The sub-maxillary gland was swollen and very painful; the skin of the cheek was indurated.

A piece of cotton twirled on a match stick was rubbed over the white exudate and then smeared on a slide, dried and fixed and then stained with Löffler's blue. Typical diphtheria bacilli with chromatin points and of large size appeared together with another bacillus which resembled the bacillus subtilis. Cultures confirmed the simple microscopical diagnosis. Antitoxin was immediately injected and strong solutions of nitrate of silver were applied to the necrotic tissue. The child was removed to the Municipal Hospital, where it recovered. Dr. Welch in a letter tells me that these cultures failed to show the diphtheria bacilli, but the nitrate of silver may have had something to do with this.

In view of the fact that cases of cancrum oris following measles and typhoid have exhibited the diphtheria bacillus on culture makes this case interesting. I cannot relate the previous history of the patient as to other infections; the child may have had measles or diphtheria, or both. There was no way of diagnosing the kind of infection other than by the microscope and the early diagnosis, and application of remedies may have saved the child serious trouble.

I might multiply instances of daily experience with sore throats of a trivial nature in which the diphtheria bacilli were found most unexpectedly, and again I might instance severe membranous sore throats which appeared diphtheritic and which occurred in houses where there were cases of diphtheria, and microscopical and subsequent culture failed to show the bacilli.

The value of simple methods like the ones enumerated is that they strengthen a man's ability to recognize disease with the unaided eye. A man is able to say, "That looks like diphtheria," and then confirm it by recourse to the microscope.

Before the advent of Laveran and his followers, any obscure irregular fever was known as malaria. Many a chronic suppurating fallopian tube, septic endocarditis, typhoid fever, and early phthisis have been drugged with quinine unavailingly. Many an obscure fever can be cleared up by a blood examination, but the limited scope of this paper precludes the discussion of any but that for the malarial parasite.

There are many interesting features in the study of hematology, a differential count of leucocytes, a simple enumeration of the red and white cells, the Widal test, all have a broad application. But these call for more complicated and difficult methods. A cover-glass and a slide are all the apparatus needed in the diagnosis of malaria.

A drop from a finger well cleaned is put on the slide and the cover-glass dropped over it. With a little experience the malarial parasite can be most easily recognized. Recourse to the beautiful plates in Thayer's book on malaria will aid the beginner wonderfully. These plates have been copied in Stengal, Butler and Simon and should be consulted.

If the case is malaria, an experienced searcher will discover very shortly that the leucocytes are very few and far between, and that some of them contain pigment, perhaps. Here and there a body of the same color almost as the leucocytes will be seen, only that its size is smaller. It contains particles of brownish black pigment which may be observed to dance about within the cell. Here and there smaller organisms will be seen in the interior of the red cells, and these may contain pigment also. These bodies are the malarial organism, and I will forego any further remarks about them since a glance at Dr. Thayer's plates will accomplish more than pages of description. The method is the easiest yet described. It is not so difficult as a urinary examination. It may take longer at times when the parasites are few, and in some instances it may be necessary to fix and stain the blood with Löffler's blue or other stains; but this is not often.

William C., aged seven and a half months, was admitted October 19, 1900, to the children's ward of the Germantown Hospital. He was sent in as a case of pneumonia by an able practitioner of many years' experience, and from physical examination it was found that there were some grounds for the diagnosis. In addition to a fever, the child had a cough, some dulness of both lungs over the bases posteriorly and there were also some râles of a character that one would find in a pneumonia in a young child. The body was very anemic and had a large spleen; he was most fretful and did not take his nourishment as often as he should and vomited most of what he did take, and seemed to be rapidly failing. Except for the large spleen, anemia and fever, there was nothing else to suggest malaria, nor was it suspected. There never was a chill nor sweat. The case was puzzling to the attending physician, and a blood examination being made, very numerous tertian malarial parasites were found. Bi-muriate of quinine and urea in one-half grain doses was administered by hypodermic t. i. d., and quinine suppositories also were used. The child got rapidly well and left the hospital cured.

In young children malaria is apt to resemble pneumonia, and it is very rare for children to have chills. The carefully kept chart is typical of a double tertian infection and from it one might get a weighty suggestion but the microscope often reveals bigger and more important hints than temperature charts.

MEDICAL PROGRESS.

SURGERY.

Division of Tendo Achilles in Cases of Equinus.—Although the apparent deformity of the foot in cases of equinus secondary to infantile paralysis is usually greatly decreased by a subcutaneous division of the tendo Achilles, yet the practical results are often far from satisfactory, for a "flail" foot may be the final outcome. R. A. HIBBS (N. Y. Med. Jour., July 15, 1902) reports 18 cases which he has followed for from three to six years since the operation, and thus is enabled to note the changes which have occurred in them. In only three cases did the calf muscles and their tendon preserve a fairly normal size and length. In four others the tendon was only moderately lengthened; but in the remaining cases the calf muscles were greatly wasted and the tendo Achilles was lengthened, flattened and much smaller than normal. In explanation of this result one factor is shown to be the impairment in the action of the calf muscles which necessarily followed the paralysis of the anterior group. This paralysis allows the deformity of equinus, and the points of attachment of the calf muscles are therefore brought nearer together. The muscle later shortens to compensate for this change. Moreover, when the tendon is severed there is still further shortening of the muscle and impairment of its action, for while the points of attachment of the calf are separated this is accomplished by changing the normal relation which exists between the length of the tendo Achilles and the muscle. It thus appears that by lengthening the tendo Achilles there must be still further shortening of the calf. A later and more gradual detrimental change results from the subsequent elongation of the structure which forms the bond of union between the divided ends of the tendon. The loss of the tendon-sheath is thought to be an important factor in allowing the lengthening of this fibrous mass of tissue. So long as such serious modifications of the function of the calf muscles frequently follow this operation the results cannot by any means be considered satisfactory.

Contraction of Iliopsoas Muscle as an Aid in Diagnosis.—Palpation of abdominal viscera is frequently very unsatisfactory on account of the uncertainty of the nature and position of a body felt through several layers of muscles and fat. Although practice greatly increases our powers of interpretation, yet all known aids to palpation are frequently insufficient to allow a correct diagnosis to be made before a laparotomy is performed. S. J. MELTZER (N. Y. Med. Jour., July 19, 1902) believes that much assistance can be obtained in the diagnosis of the contents of the iliac fossæ by causing a contraction of the iliopsoas muscle. During the active contraction of this muscle the palpating fingers perceive

an elevation running diagonally in the iliac fossa from the groove between the inferior spine and the iliopectineal eminence to the angle formed by the last rib and the lumbar vertebræ. The more the active flexion approaches a right angle the higher the elevation becomes. In regard to the method it is, of course, necessary that it should be an active contraction, and for the better securing of this the leg should remain extended at the knee and the heel raised a few inches from the bed by flexing the thigh at the hip. If greater flexion is required, the knee must then be bent, but the foot should never touch the bed. Alternate contraction and relaxation of the muscle will cause the prominence to rise and fall on the posterior abdominal wall and thus act similarly to the diaphragm upon the viscera in the upper abdominal cavity. It can be used as a landmark to determine whether a resistance is located on the psoas, or on its lateral or median side. It is thus of great assistance in locating a suspected appendix, for sometimes the iliac artery, which is on the median side of the muscle, has been taken for this organ. By adduction and abduction during partial flexion the prominence can be felt to move somewhat from side to side and, as it were, thus to roll the organ beneath the fingers.

Changes in Treatment of Hip-Disease.—Some 20 years ago a monograph on "Hip-disease in Childhood" was written by G. A. WRIGHT (Practitioner, July, 1902), and he now shows that the changes in the line of treatment of this condition have been improvements in the general management of wounds rather than alterations in the principles which underlie the treatment of joint disease. There were then as now advocates and opponents of excision. The supporters of the operative treatment founded their views on the principle of removing a tuberculous focus, getting rid of dead bone, and so cutting short the disease. The chief arguments against excision were the dangers of wound infection and the alleged inferiority of stability and usefulness of the limb. The abolition of drainage and complete closure of the wound, so as to obtain primary union and get rid of the dangers of mixed infection, was the next great advance, and a further step was taken when in case of "abscess" the operation was divided into two stages. In the first the "abscess" was laid freely open and thoroughly cleaned out, or even excised, and when this had healed the diseased bone was removed if necessary. This led to fewer excisions, for when the "abscess" was healed it was frequently found that nature took care of the bone lesion. The use of iodoform in open operations and also as an injection has undoubtedly been helpful, and combined with extension it is employed in Holland almost to the exclusion of other methods. Rest, extension and fixation by splints or traction apparatus are still the methods in early cases and the better results obtained are probably due to the greater care taken and the fact that the cases are seen and treated earlier. Later follow extirpation of "abscesses," or in some cases aspiration and injection with iodoform, excision where the disease is progressive in spite of treatment, and amputation when a useless limb and pelvic disease render recovery hopeless. These constitute the main features of the present-day treatment.

Excision of Knee for Deformity and Tuberculous Disease in the Adult.—This radical operation is, of course, not to be recommended except where fixation and protection appliances are regarded as insufficient, but there are many cases, especially in adults where the ankylosis is not complete, and falls and sprains prove so annoying to the patients that they lose confidence in themselves. V. P. GIBNEY (N. Y. Med. Jour., July 26, 1902) reports three cases in which very good results were obtained from this operation, and it is probable that in all these cases the function would always have been far from satisfactory. Although there seemed to be no active trouble, in two of the cases small necrotic areas were found in the joint-surfaces, some of them burrowing deeply into the bone and undoubtedly preventing complete healing. Plaster of Paris casts and splints had been used in one case for nearly two years and there were only about five or six degrees of movement, but there was always danger of unexpected movement unless the uncomfortable splint was employed. An excision was finally done, giving the patient a firm and useful limb. An ankylosed knee is seldom as strong as a synostosed knee, and especially in adults the chronic inflammatory tissue or necrosed areas are liable to prevent accurate and complete ankylosis. It is recommended that the operation of excision be not delayed so long as has been usual in the past.

A Thoracobiliary Fistula.—An example of this rare condition is reported by ESCHENHAGEN (Deut. med. Woch., July 24, 1902). The patient was subject to a cholelithiasis which suddenly became complicated by a cholecystitis and cholangitis. A circumscribed peritonitis resulted, with numerous adhesions, and the liver became the seat of multiple abscesses. One of these ruptured into the right lung, and when it had caused a circumscribed gangrene the pus was discharged through a bronchus. Healing gradually took place in the abscess cavity, and a fistulous communication was established between the former and a bronchus, so that the expectoration of pure bile became constant. Two months later death resulted from tubercular peritonitis.

Hand Disinfection.—The question of hand disinfection is discussed by C. LAUENSTEIN (Münch. med. Woch., July 29, 1902), who, while he realizes the inefficiency of the usual procedures, has many words of praise for the Ahlfeld hot-water-alcohol method. He had occasion to operate a severe phlegmon, during which he punctured his finger. Several hours later an intestinal obstruction was reduced and it was necessary to manipulate the intestine considerably. This case made an uneventful recovery, yet the operator developed a severe phlegmon on the injured finger from the germs of the first operation, which, however, could not have remained in the superficial layers of the skin after the thorough disinfection that was practised. This was a slight modification of the original Ahlfeld method, in that the brush was used only toward the end, when the water no longer becomes dirty.

Ligation of the Lingual Artery.—The importance of this blood-vessel in all operations of any extent within the mouth renders its ligation a preliminary step of great importance. The old site of approaching the artery through the inframaxillary triangle is time-honored and cannot be disregarded. However, there are certain cases where in order to avoid a scar the vessel should be reached through the mouth if possible. Such cases would be those in which the tongue is only slightly diseased and consequently may be freely manipulated within the mouth. C. W. CATHCART (Annals of Surgery, July, 1902) gives the following method of accomplishing this desirable point. The method to which he draws attention is based on the fact that the hyoglossus muscle, although attached to the posterior third of the tongue, can be reached from the mouth when the tongue is drawn far out and the mucous membrane has been divided between it and the jaw. The operation is performed as follows: The jaws are opened wide; the tongue drawn forward with a stout silk suture in each half; the mucous membrane divided along the middle line of the dorsum, behind the growth, and between the tongue and the jaw; the tongue split; and the fibers

of the geniohyoglossus divided close to the symphysis with scissors, so that the diseased half of the tongue can be drawn well out of the mouth. After this, with a few vertical strokes of a director or other blunt instrument, the anterior edge of the hyoglossus muscle is defined. The director is then insinuated beneath the muscle, the tissue being separated with the point before the instrument is pushed on. The muscle is next carefully cut through on the director for about two-thirds of its extent, and the fibers retracting leave the artery at the bottom of the wound covered only by a little connective tissue. With the point of an aneurism-needle or director the vessel can then be easily defined as a bluish cord, and traced downward and backward. An aneurism-needle should then be passed under it, and the vessel tied before it is cut. Some may prefer to seize it with forceps and cut before tying it, but the previous ligature is easier. After the artery has been ligatured and divided, a few snips should be made with the scissors radiating out from the ligatured artery into the substance of the tongue. This lessens the chance of cutting the artery again in the later stages of the operation. All that now remains to be done is to complete the operation, cutting wide of the disease. The advantages of this method are ease and certainty in securing the lingual artery; diminished bleeding from small vessels; greater certainty in cutting wide of the disease, along with an intact condition of the tissues of the neck for subsequent removal of the submaxillary and lymphatic glands. In two recent cases of epithelioma of the tongue he found this method of securing the lingual artery work admirably. On carrying the procedure out in the dissecting room, he found that one can reach in this way the same part of the artery that is tied in the usual operation for a preliminary ligature in the submaxillary triangle.

Hepatopexy.—The operative cure for displacements of the liver are still more theoretical than practical, for recourse to operation has been had in but few cases. So says A. LAMBOTTE (Gaz. de Gynéc., July 1, 1902). The wearing of a binder often affords relief from the painful symptoms, and again may be the cause of a great deal of the trouble. The indications for operation in movable liver are still very obscure. Einhorn discountenances operation on the pretext that presence of the edge of the liver below the costal margin is not a manifestation of enteroptosis, and that surgical intervention does not remove the cause of the evil. There are cases where the binder does not give any relief to the disagreeable symptoms and where operation gives a perfect result. Failure to relieve the trouble or recurrence must be put down to faulty technic on the part of the operator. The three operations which received commendation in hepatosis were: (1) The suturing of the liver to the abdominal wall (properly called hepatopexy); (2) the subhepatic peritoneoplastic operation of Péan; (3) the laparoplastic operation of Depage. The author thinks that the only practical operation is the first one here mentioned and his experience with it has given perfect results.

Spontaneous Reduction of Acute Intussusception.—The diagnosis of this affection is always one of great difficulty because the condition occurs so frequently in children who cannot aid the physician by giving a good history. Even after the condition has been recognized, treatment is a question of extreme difficulty because the patient is usually so much reduced in strength. Spontaneous reduction of intussusception may be regarded as one of the rare clinical experiences. W. G. NASH (Lancet, July 20, 1902) gives the following facts of such a case: A male child, aged eleven months, between 12 and 1 o'clock midday on June 4 was seized with abdominal pain which caused screaming and great collapse. Vomiting occurred. He saw the child shortly before 3 o'clock when he found him pale and suffering from extreme collapse. On examining the abdomen a swelling could be seen passing from the region of the cecum obliquely upwards towards the epigastrium. On palpation a firm sausage-shaped tumor three or four inches in length could be felt. He concluded that an intussusception was present and made preparations for immediate operation. Hot bottles were applied to the extremities and hot flannels to the abdomen. He saw the child again in consultation at 4 o'clock and found him looking much better, having had a sleep. The lump could still be seen and felt, but was evidently smaller, and during their manipulations it suddenly and entirely disappeared. There was a history of looseness of the bowels on the previous evening. This appears to be a case in which spontaneous reduction of an intussusception really occurred. He was perfectly certain that an intussusception was present. The symptoms of severe shock were very marked and the presence of a very distinct elongated tumor was very easy to demonstrate to the relatives. No doubt the diarrhea of the previous night led up to the occurrence of the condition. The reasons why the intussusception was reduced appear to him to be three: (1) The manipulations necessary to form a diagnosis acting on a very recent intussusception; (2) the occurrence of faintness and vomiting leading to relaxation of muscular spasm; and (3) the application of heat to the abdomen acting in the same way.

Injuries of Nerves.—The clinical and medicolegal importance of this subject is well known and deserves careful attention from every practitioner of medicine. A. A. BOWLBY (Lancet, July 17 and 26, 1902) has an instructive paper dealing with this subject. So far as the treatment, which is of greatest importance, is concerned he makes the following statements: In the first place, nerves do mend in many respects as well as do other tissues of the body, and after a preliminary degeneration regenerative changes ensue in the peripheral end and are more complete in the sensory than in the motor fibers. On the other hand, one must not expect a too complete restoration of muscular power or of sensation, especially in the case of nerves supplying the hand. So far as the treatment of these wounds is concerned primary suture is the thing to aim at in all cases, and when a primary suture has been undertaken and successfully carried out and the wound has healed by first intention, in those circumstances one may rest assured that the nerve will unite, and it will unite all the more quickly if one takes care to keep the part in use, to keep it warm, to have it massaged, and if necessary to have it galvanized. It will surely unite in time, and the more quickly if the patient be young. Patients should be dissuaded, therefore, from being in a hurry to have other operations done if primary suture has been satisfactorily performed and the wound has healed by first intention. Secondary suture ought to be undertaken in every case where in a punctured wound a nerve appears to have been either completely divided or so nearly divided as to make it probable that it has been materially injured and may perhaps be really divided. In undertaking the operation of secondary suture the patient should not be encouraged too much if the interval between the injury and the secondary suture is a very long one. His experience is that up to two years one may reasonably expect in the young a good restoration of sensation and muscular power. But after an interval of four years no one has ever yet recorded a case in which there has been complete restoration of motor power, although there have been cases of restoration of sensation. When one undertakes these operations for secondary suture, therefore, it should be remembered

that to some extent the diagnosis is to be guarded, and in giving it one must be guided by the length of time which has elapsed and to some extent by the age of the patient and the particular nerve which is injured. One may give a much better diagnosis, from the patient's point of view, in cases of wounds of nerves other than those which supply the small muscles of the hand with power and the fingers with sensation.

Appendicitis Toxemia.—Reporting two cases of appendicitis with general toxemia, acute degeneration of the kidney and death, M. DIEULAFOY (Bul. de l'Academie de Médicine, July 14, 1902) gives the opinion that, in view of the many complications of appendicitis, to delay operation is to expose the patient to the chance of death. Peritonitis, general or local, distant abscesses, generally fatal liver involvement, pleurisy, empyema, purulent pericarditis and cerebral abscess are some of the dangerous lesions resulting from delayed operation. The "interval" operation is easy and practically free from mortality, but it is certain that during the waiting for the interval enough patients succumb from the acute attack or from a complication to make delay unjustifiable. Undoubtedly the cause of death is often a subacute toxemia which manifests itself in the stomach, liver and kidneys.

True Foreign Body in the Appendix.—The presence of true foreign body in the sense of its introduction from without and not of formation within the organism is really far more rare in the appendix than many authorities grant. J. D. MALCOLM (Lancet, July 5, 1902) gives the following brief notes of a case in which a black pin, surrounded by fecal concretions, was found. The patient, a female child, whose illness lasted for two days, was not attended by any medical man, but a physician was sent for after her death. He was told that the girl was six years old and had shown no evidence of abdominal mischief before October 7, 1901. On that day she was at school and quite well. In the evening she was seized with violent pain in the abdomen, vomiting, and diarrhea. The next day, and off and on for a few days, she was better, but on the ninth day she died suddenly. The body was opened by order of the coroner. The small intestine and mesentery were found to be glued together by inflammatory adhesions so as to shut off the pelvic cavity. The appendix was in a gangrenous state beneath the adherent coils and close to the peritoneum covering the sacrum. Liquid feces had exuded and had filled the pelvic cavity. On incising the appendix the concretion was exposed and it was noted that the point of the pin was directed towards the tip of the appendix. Before the drawing was made the concretion had shrunk so as to expose more of the head and point of the pin than was shown in the fresh moist state. The case is interesting as it shows that the most serious mischief connected with the vermiform appendix may excite no real anxiety in the minds of a patient's friends. Prompt interference by operation was the only treatment that offered any chance of saving the patient's life, but if a medical man had been consulted immediately after the onset of symptoms it is obvious that examination of the parts in a child aged six years would have been difficult and unsatisfactory, and the surgeon, however great his experience, might have failed to grasp the full gravity of the case in time to perform a successful operation.

Inequality of the Pupils in Thoracic Aneurism.—This reflex symptom has been stated in text-books and articles as one of the earliest and most reliable symptoms of aneurism within the thorax, especially in the arch of the aorta. C. B. WALL and E. W. A. WALKER (Lancet, July 12, 1902) presented the following summary and conclusions in this matter: A.—The explanation which ascribes the anisocoria at times occurring in cases of thoracic aneurism to interference with the sympathetic is unsatisfactory. 1. On anatomical grounds: (a) Because in the majority of cases there is no evidence of implication of that portion of the sympathetic nerve-trunk containing pupil dilator fibers; (b) because it is not established that sympathetic filaments supply to sac-wall of an aneurism. 2. On physiological grounds: (a) Because the explanation supposes that the same conditions may produce sometimes paralysis of the nerve; (b) because cases are rare in which there is any evidence apart from the pupillary change that the sympathetic is involved; (c) because the pupillary changes are not those met with in cases where the sympathetic is involved. B.—1. Alterations in vascular conditions may be associated with alterations in the size of the pupils. (a) High arterial tension is associated with small pupils; (b) low arterial tension is associated with large pupils. 2. The physical explanation of this phenomenon is probably to be found in the spiral structure of the vessels of the iris. C.—Local inequalities of blood-pressure may therefore be associated with inequalities of the pupils. (a) Clinical evidence: 1. Enlargement of pupils is frequently associated with diminution of the temporal and radial pulses on the same side of the body. 2. Obstruction of the carotid artery on one side of the neck is associated with enlargement of the pupil upon the same side. (b) Experimental evidence: 1. Obstruction of the carotid in rabbits is associated with enlargement of the pupils on both sides owing to the freedom of circulation at the base of the brain. 2. Injection of water into the carotid artery of a dead rabbit causes narrowing of the pupil upon the same side. 3. Digital compression of the carotid artery in the human subject is associated with enlargement of the pupil upon the same side. They therefore conclude that inequality of the pupils associated with thoracic aneurism is usually due to inequality of blood-pressure in the ophthalmic arteries resulting from the abdominal vascular conditions.

Iliac Dulness in Appendicitis.—In calling attention to the necessity of an early diagnosis in appendical inflammations, RIEDEL (Berlin. klin. Woch., Aug. 4, 1902) lays stress on the doubtful value of a classical sign, namely, dulness in the right iliac region, as a factor in determining operation. The presence of this sign can usually be considered a positive indication, but its absence cannot alone be taken as a reason for delay. He shows that it cannot occur unless the appendix is encompassed by adhesions. When perforation takes place at a point remote from the iliac fossa it cannot be demonstrated. A previous dulness will moreover disappear when air enters the abscess through the appendical canal.

Diagnosis of Hip-Disease.—This term has been used by general agreement to designate a tuberculous ostitis of the hip-joint. Statistics of various clinics seem to show that the diagnosis of hip-disease in children is the overwhelmingly prevailing one where the hip-joint is concerned. Such figures suggest two possibilities: (1) Either tuberculous ostitis of the hip is practically the only affection of the hip that occurs with any frequency, or (2) other affections of the hip-joint are confounded with tuberculous ostitis and mistaken for it. A contribution to the question has been made by R. W. LOVETT (Bost. Med. and Surg. Jour., Aug. 14, 1902), who has taken for analysis 95 cases coming under observation during a period of two years. The inquiry made four years later was for the purpose of ascertaining whether they had pursued a course characteristic of tuberculous disease or not. A provisional classification of the results is as follows: Old cases, rejected, seven; insufficient data for diagnosis, eight; recovery

after a transitory affection, 21; some serious affection not obviously tuberculous, 14; tuberculous hip-disease, 45. After a careful consideration of the symptoms and the subsequent history, the author concludes that the signs ordinarily taken to be diagnostic of tuberculous hip-disease are not characteristic of it, but are also present in cases which rapidly recover, and in other forms of chronic joint-inflammation than the tuberculous. He thinks that better diagnostic standards must be sought, more accurate than spasm, atrophy, night-cries, or joint-sensitiveness. Of all the signs given, "thickening of the trochanter" proved most reliable. The X-ray is of value in early diagnosis.

Fat-Necrosis.—It has usually been considered that this process is closely related to some pathological condition in the pancreas, and most autopsies seem to have confirmed this view. A new aspect to the question is given by the report of a case observed by P. WULFF (Berlin. klin. Woch., Aug. 4, 1902). It deals with an alcoholic patient who, shortly after recovery from a severe pneumonia, was taken ill with what appeared to be appendicitis and subsequent abscess formation. The operation revealed a large cavity due to a fat-necrosis, the latter process also extending to other parts of the abdomen. Death came on in a few days, hastened no doubt by the severe hemorrhages into the cavity. Autopsy showed the appendix to be perfectly normal. There was present, however, a typical necrotic process involving all the abdominal fatty tissue, with its focus in the region of the cecum. The pancreas was found entirely normal. The author believes that fat-necrosis in many cases is a disease sui generis, which may prove fatal without involving other organs. The pancreatic involvement is often probably a secondary process.

GENITO-URINARY AND SKIN DISEASES.

Cystopyelitis and Methylene Blue.—The great popularity and evident success which have attended the employment of methylene blue for the cure of inflammations of the genito-urinary tract are well known. Adverse reports are comparatively rare, but should receive due note. T. H. VAN DE VELDE (C'blatt f. Gynäk., 1902, No. 23) offers the following unfavorable observations in this matter which appear to refute many of the former claims for this treatment. Upon the skin methylene blue is faintly antiseptic and not at all irritating. Upon the mucosæ, however, throughout the body it is often very exciting and often leads to distinct and somewhat prolonged reaction. For these reasons Carl von Braunschweig has recently counselled against its employment in diseases of the eye. Mild and severe reactions in the stomach have been seen frequently enough, both after continued and incidental administration. Similarly diarrheas have been seen by its irritation of the intestinal tract. The kidneys are for reasons not fully understood the sole avenue for the elimination of this chemical and its derivatives. Therefore by analogy one must expect at times irritation of the mucosæ of the genito-urinary organs during the process of its evacuation from the body. Van de Velde reports cases of mild bladder reaction, shown by tenesmus, frequency and pain on urination in patients whose renal sufficiency he was testing by the internal exhibition of this drug. It seems as if the muscosa of the bladder were the most easily affected. In patients already suffering from inflammation of the bladder he has noted occasionally accentuation of the symptoms. He subjected the drug used to tests spectroscopically for its purity and found it without adulteration. Zinc salts are the most common impurities and naturally cause much irritation. Aside from their presence, the pure drug may be the origin of trouble in some individuals, according to his experience. Therefore he concludes that its employment is not without occasional difficulty.

Urticaria Pigmentosa.—This rather uncommon disease belongs usually to childhood and disappears spontaneously about puberty. H. LAWRENCE (Intercol. Med. Journ., May 20, 1902) reports a very marked case and since the disease is most active during the time when we suppose the thymus gland to be functionating, he is trying the effect of administration of that gland upon this case. So far it seems to have aggravated the condition somewhat and there seems to be a distinct variation in the severity of the symptoms corresponding to the use of this remedy. It is thought that the disease may be due to a hypersecretion from this gland.

Pelade and Phosphorus.—Dissatisfied with the results obtained by the usual methods of treating alopecia and convinced that the affection has commonly a purely nervous origin. V. A. BIALOBJESKY (La. Sem. Méd., 1902, No. 24) conceived the idea of combating it with phosphorus. In a short time he became convinced that this is the correct treatment because in so many instances new hair began to grow in patients who did not react at all favorably to the ordinary medications. One child twelve years old in his hands for eight months under arsenic by mouth and hypodermatically without results promptly began to develop new hair under phosphorus. In the third month of the latter method, the new growth reached four cm. in length. He habitually combines the phosphorus with arsenic and employs the following formula by choice:

℞ Phosphorus .....0.06 gram
Dissolve in olive oil and then add:
Arsenous Acid .....0.01 gram
Mix and divide into 120 pills.
Mark: 1 to 4 pills daily.

This medication is naturally chiefly successful against recent cases of alopecia. In these at the end of the first month, as a rule no more new areas of it appear and the whole course of treatment ends in three or four months. It is well to interrupt the treatment by a week of rest from the medicine during such a four-month term.

Roentgen Dermatitis.—The true Roentgen rays and not the electrical or chemical ones which also emanate from the tubes, are held responsible by D. WIESNER (Münch. med. Woch., June 24, 1902), for the dermatitis so often seen. This may be acute or chronic and in the patient observed by the author, there was an eruption on the hands and arms, similar to chronic dermatitis, which spread to the face and trunk with suppuration in many localities. The duration was several months. The process is best explained on the hypothesis of a trophoneurosis; the negative ions issuing from the tube penetrate the skin and create a chemical change in the molecule in or about the nerve-endings, which by way of reflex is followed by trophic disturbances in the skin. This accounts for the concomitant falling out of the hair, the long period of incubation and the slight benefit from therapeutic procedures.

Status of the Bottini Operation.—An analysis of 888 operations by forty-eight operators for the relief of obstructive hypertrophy of the prostate, has been made by O. HORWITZ (Penn. Med. Journ. June, 1902). The summary of results is as follows: Cases improved or cured 84.3 per cent.; unimproved, 10 per cent.; deaths, 5.7 per cent. These cases were probably not selected as particularly suitable for this method, and the results point to the value of the Bottini operation as a safe procedure when compared with others. The author's conclusions from his observations are: That there is less fear on the part of the patient to submit to this operation than to any other. The principal advantages are the short time required for its performance, the slight amount of hemorrhage and shock, rapid convales-

cence and low mortality. Cures result in a large majority of cases and marked improvement in cases where other treatment is unwarranted. Failures are due to complications, especially an incurable cystitis. The operation is contra-indicated when a valve-like formation exists or where there is greatly increased overgrowth of the three lobes, associated with tumor formation. It is a good palliative measure in old cases with cystitis and constipation. Pyelitis when present adds to the danger but is not always a contra-indication. The operation may be employed as a safe and satisfactory means of causing a supra-pubic fistula to close, which frequently follows a supra-pubic cystotomy when the prostate gland is hypertrophied. It is especially indicated in the beginning of obstructive symptoms and may be regarded as prophylactic.

PEDIATRICS.

Diphtheria and Peroxid of Hydrogen.—About three years ago E. Riegler of the Faculty of Medicine at Jassy recommended the use of peroxide of hydrogen and iodic acid insufflated upon diphtheritic throats. Recently N. NOVIKOV (La. Sem. Méd., 1902, No. 26) has been making use of the peroxide of hydrogen without any other means of treatment, even without serumtherapy. His results are that the number of cures is just as great as with the administration of the antidiphtheritic serum. Although the detachment of the false membrane is not quite as prompt with the peroxide of hydrogen alone, there is never any depression with it as often occurs with the blood serum alone. The local germicidal activity of this drug is so potent that the absorption depression of the false membrane is limited by it as much as by the serum; otherwise the record of cures would not be so good. His method of employing the drug is to make a 3 per cent. mixture of the drug in water and direct the patient to gargle the throat liberally with it night and day at short intervals. If the patient is too young to carry out these directions properly he resorts to internal administration, making up a mixture as follows: Peroxide of hydrogen 5 to 7 parts, simple syrup 15 parts, distilled water 85 parts. The dose is a coffee- or dessert-spoonful every one or two hours. In order to promote the casting off of the false membrane he practises washings of the throat once or twice a day with the 3 per cent. solution. They are not painful and usually attain the purpose well. Novikov has found the same methods valuable in nondiphtheritic angina, and all forms of stomatitis, especially mercurial.

Pertussis and Iodide of Ethyl.—The similarity between whooping cough and attacks of asthma led BARDET and AMAT (La Sem. Méd., 1902, No. 26) to treat the former on the same plan as the latter in two cases of rebellious spasm, by employing iodide of ethyl by inhalation. They took a wide-mouth bottle into which they poured a few grams of the drug and then compelled the child to inhale from it. The result was a decrease in the number and activity of the spasms and a beneficent increase in the bronchial secretions. The therapeutic effect was very marked at first though it tended to decrease with use, but at the same time the seizures numbered six instead of forty a day and became much less severe.

Scarlatina and Turpentine.—A few years ago two Spanish physicians, I. Pujador y Faura and J. Viura y Carreras of Barcelona, reported an intense case of scarlatina which they treated with success by hypodermatic injections of essence of turpentine. Acting upon this suggestive case A. TOBEITZ of Gratz (La. Sem. Méd., 1902, No. 27) employed turpentine in the treatment of all the hospital cases of scarlet fever coming under his care at the clinic there. He found the hypodermatic method of administration exceedingly painful and prone to cause abscesses and therefore abandoned it in favor of the mouth-administration. The total daily dose which he used was fifteen to twenty drops in a single, or in divided administration, best in milk as a vehicle. He is still so well satisfied with this drug that he is still employing it and has already done so in about one hundred cases. Its special efficacy is against the renal complications, which it appears in many patients to prevent and in others to modify or check, so that in his present series of cases albuminuria is of very rare occurrence. It is of interest to note that essence of turpentine was prescribed for scarlet fever as long ago as 1868 and results reported by Helsingfors of Pippingsköld.

EYE, EAR, NOSE AND THROAT.

Immunization Treatment of Hay-fever.—A series of trials of this method have been made by E. F. INGALLS (Journ. Am. Med. Assoc., June 28, 1902). He used fluid extracts of Ambrosia artemesiefolia and Solidago, giving two minims of the mixture in capsules four times daily, a.c., followed by glass of water. The dosage was increased two minims daily until twenty minims were taken q. i. d. This was given for two weeks, and continued on return of symptoms. Local applications of adrenalin were also given for immediate relief. In eighteen cases treated, a favorable result was reported in twelve cases, or 67 per cent. Thirteen believed they were benefited by the spray combined with the extract. Sixty per cent. were subject to asthma during the attack and one-half of this number reported relief from these symptoms. In two cases gastric disturbances followed and in one, menorrhagia. The author believes that he will get more complete results with a trial of more reliable and standardized preparations than those at present made.

Dry Method of Treatment for Otitis Media.—The mucous membrane of the tympanic cavity is naturally very resistant to micro-organisms and since dryness is as fatal to most germs as strong chemical antiseptics, F. W. DAVIS (N. Y. Med Journ., July 12, 1902) has been employing the dry method in treating both acute and chronic middle ear troubles. It, however, requires more skill than syringing and cannot be done properly even by many physicians. The discharge should first be wiped away with a cotton-carrier exposing the drum, perforation or the tympanic cavity if the drum is destroyed. In the latter case the cavity should be thoroughly cleansed of secretion. A narrow strip of dry gauze should then be introduced through a speculum and the canal loosely packed to the meatus. This should remain until thoroughly soaked with the discharge whether it takes one or twenty-four hours. It is then removed and replaced by a piece of dry cotton which remains till the next packing which is done once or twice daily according to the amount of the discharge. It is believed that cures are more rapidly obtained in this than any other way and it is, furthermore, very agreeable to the patient.

Bucco-Nasal Respiration.—That normal respiration is nasal is an established fact; that in abnormal conditions buccal respiration may replace, though imperfectly, the nasal, is repeatedly observed; but the possibility of respiration occurring simultaneously, through mouth and nose has been the subject of some discussion. H. LAVRAND (Jour. d. Sci. Méd. de Lille, June 21, 1902, has, apparently, proven that bucco-nasal respiration is possible, through observation of the phenomenon in a child sleeping with the mouth partly opened; two mirrors placed respectively under the nostrils and in front of the mouth demonstrating, by clouding of the surface, simultaneous respiration through

both organs; and like experiments with subjects in the waking state showed that inspiration and expiration take place simultaneously, in a certain number of cases, through the mouth and nose.

Otitis Media Complicating Measles.—Deaf-mutism only too often follows measles, usually because the complicating otitis media is not appreciated soon enough to be properly treated. H. JARECKY (Med. Rec., July 19, 1902) says that in infants and children who cannot direct attention to the spot whence the trouble arises, any increase in temperature, fretfulness, restlessness, burying the head in the pillow, or putting the hand to the ear should call attention to that organ. In examining an adult the auricle should be pulled upward, backward and outward to straighten the canal. In children it is nearly straight and the drum is easily inspected, but in infants the lobe should be pulled downward and outward, and one should look upward. One should not be deceived if the membrane is of a dead white color, for this is sometimes due to necrosis of the superficial epithelium, which can be easily removed by a cotton-tipped probe, when the reddened membrane can be seen. Local abstraction of blood is often found beneficial in adults. Occasionally phenacetin or acetanilid in divided doses may relieve the pain, but morphine is seldom justifiable. Glycerin, with five to ten per cent. of carbolic acid, applied on a cotton pledget to the drum membrane and allowed to remain six to 24 hours, often cures the pain. This can be repeated if necessary. Dry heat is very effective, but moist heat should not be employed on account of the danger of edema. If the attack is not aborted, the hyperemia increases and the membrane loses its luster, causing a general swelling and bulging. Paracentesis should then be done before perforation occurs. Local anesthesia is seldom sufficient, but nitrous oxide gas usually suffices admirably. A generous incision should be made with a very sharp knife in the lower posterior quadrant. The canal should then be frequently irrigated with sterile water, bichloride 1 to 5,000, or boric acid. Another method is to dry the canal thoroughly once or twice daily and pack with gauze.

Hints on Chronic Nasopharyngeal Catarrh.—The prevalence of catarrhal conditions of the nose and throat in this immediate vicinity has been thought by many to be due to the great amount of moisture in the atmosphere along the seacoast. W. FREUDENTHAL (Med. Rec., August 9, 1902) believes that, on the contrary, an important efficient cause can be found in the lack of moisture. He urges that those who are affected are not accustomed to outdoor work but are housed up in some factory, store or home where the moisture of the air is largely eliminated by the use of artificial heat, especially the dry heat of a furnace. He urges more outdoor life, less fear in exposing ourselves to inclement weather, and more time spent in inhaling moist atmosphere. He advises the inhalation of steam when the trouble is present, and this may be medicated with turpentine, eucalyptus or other harmless and probably useless drugs. The steam is the essential factor. In winter he believes patients will get more relief if they use hot water than cold baths. The room should be filled with steam from the hot water and inhaled for several minutes. A cold douche later will prevent "taking cold." In the treatment of atrophic catarrh he recommends the use of tampons saturated with a five to ten per cent. ichthyol solution worn in one nostril for two hours in the morning and in the other for two hours in the evening. He employs douches and sprays very seldom. Carbonic-acid gas has given him very good results by causing a hyperemic condition of the mucous membrane. Internal massage, as suggested by Braun and Laker, is especially beneficial and is applied by an electric vibrator which is made for the purpose. It is not difficult to apply, and the activity of the glands which may thus be induced is particularly gratifying. He has not found electrical treatment very beneficial.

Adrenalin in Epistaxis.—The efficacy of the suprarenal extract in nose and throat work is now very generally accepted as proven, but many have found that the cases of secondary hemorrhage following its use are much too common. J. P. BOOTH (South. Cal. Practitioner, July, 1902) reports an instance of very alarming epistaxis in which all ordinary methods of stopping the hemorrhage were tried without success, and the patient was reaching a dangerous condition when adrenalin in a strong solution was used with most happy results. There was no further bleeding either immediately or secondarily.

Phenol and Granular Conjunctivitis.—The frequent failures which follow the usual methods of treating granular conjunctivitis by the common topical methods are well known, no matter whether such procedures are mechanical or surgical, like curetting, bathing with sublimate, expression, ablation of the superior cul-de-sac, and other similar means. V. A. NIEMLCHENKOV (La Sem. Méd., 1902, No. 22), convinced that these limitations of the treatment are due entirely to the localization of the morbid process within the deeper layers of the mucosa, and even at times within the submucosa, has had the idea of combating the disease by subconjunctival injections of a watery solution of carbolic acid, 5 per cent. strength. The interstitial injection of this solution has given him excellent results in certain local infections which were deep-seated. His manner of proceeding is as follows: After having turned out the lower lid, he passes the needle under the conjunctiva at the point most affected by the disease and as far as possible toward the external angle of the eye and near the free border of the lid. At this place he injects slowly a few drops from a syringe, taking great care to avoid tension of the tissues and to displace the needle as rapidly as this occurs. He then injects a few drops opposite the other angle of the lids and repeats the entire process in the upper lid. It is necessary to place these injections immediately beneath the conjunctiva and not to force the needle into the deeper structures. As a rule, they do not require any local anesthesia because the carbolic itself possesses, as is well known, this very effect. Sometimes, however, at the moment of injection the patients experience severe pain, which very shortly disappears. The indications are to begin with one injection at the point most affected and not to repeat the treatment, unless in the opposite eye, in less than from five to seven days. After the injection a dressing is applied in order to avoid an excess of inflammation. On the following day, however, the patient begins as a rule to open his eye, and the edema commonly disappears promptly. The epithelial layer of the conjunctiva remains absolutely intact and the reaction manifests itself commonly by slight infiltration and hyperemia of the mucous and submucous tissues. These reactional signs disappear always and completely within from 10 to 14 days. If carried out aseptically and with slight pressure, these injections do not cause suppuration or gangrene. He has not yet seen any symptoms of poisoning, although the quantity of carbolic used has been considerable after a number of injections. He has managed in this fashion 43 patients, and the majority of them were completely cured after one treatment; a few after two, and only exceptionally after three sittings. Between such repetitions he prefers to allow an interval of two weeks, but never less than five days.

Cocaine and Menthol for Coryza.—The headache and sense of obstruction within the nose which usually accompany coryza during the acute stage are the two

symptoms with which the physician is concerned in order to afford immediate relief to the patient. It is often enough that sprays and douches are resorted to which embody a warm solution of cocaine, but the danger of the cocaine-habit in using this drug alone makes the physician hesitate to give it promiscuous employment. For this reason A. PUGAT of Vienna (La Sem, Méd., 1902, No. 22) has been using his mixture of cocaine and menthol with great satisfaction so far as the results upon the symptoms and the danger of drug-habit are concerned. He takes five parts each of the hydrochlorate of cocaine and of menthol in 100 parts of liquid vaseline. The effect is relief of congestion to a marked degree and best when the spray is repeated every three hours. He finds that this effect is more marked than when the cocaine alone is used.

Chancre of the Tonsils.—The literature of syphilology contains, all told, records of about 10,000 cases of extra-genital chancres. Of these the majority are said by Kyle to occur in the throat, although Bulkley assigns this site only the sixth position in the order of frequency. W. CHEATHAM of Louisville (Medicine, July, 1902), has seen seven cases within a year and a half, most of which had previously been unrecognized. This leads him to the conclusion that many cases of chancre of the tonsil are probably overlooked, especially as they lack the characters which distinguish the lesion on other parts of the body. He holds that persistent sore throat, with inflammation or lesion of the tonsil, and with indolent, non-suppurative buboes situated at the angle of the jaw, should always arouse suspicion of syphilis. The occurrence of the secondary skin eruption is of less importance in these cases, as it often fails to appear. As regards the tonsil itself, the appearances are extremely deceptive. It is increased in size, and usually its entire structure is involved. The induration of the base can not generally be made out, owing to the loose structure of the underlying tissue. There is frequently no superficial loss of tissue, but often the surface is covered with mucus or a pseudomembrane. Therefore the diagnosis hinges on the obstinacy of the tonsillar inflammation, together with the occurrence of the typical submaxillary glands. A history of exposure is hardly even obtainable. Diagnosis is often confirmed, ex juvantibus, by the success of antiluetic measures.

Corneal Ulcers and Pure Phenol.—The usual method of treatment applied to ulcer of the cornea of progressive and destructive type is eradication by the galvano- or electrocautery or a staphyloma-needle heated to redness. Unfortunately, although these measures cure the ulcer because they destroy it, they also annihilate the subjacent tissue to such a degree that leucomata develop and persist with much interference with vision. With the purposes of furnishing a radical cure and of obviating these difficulties S. THEOBALD (La Sem. Méd., 1902, No. 25) has been using pure carbolic acid with satisfactory results in suitable cases. His method of application is the following: The eye is cocainized and cleansed, and then a very small pledget of absorbent cotton is wound upon an ordinary toothpick, soaked in the pure carbolic acid and applied to the ulcer with a scraping movement. Care must be taken not to permit the acid to extend beyond the ulcer, and it must be washed off with boric acid or normal salt solution after a few moments' action. Theobald does not intend this treatment for all ulcers of the cornea, but for such as resist the other means, such as ointment of ammoniated mercury.

HYGIENE.

Transportation of Mosquitos.—In a preliminary report E. SOUCHON (Med. Rec. July 5, 1902), shows that mosquitos are sometimes found in the holds of vessels even after a journey of five and a half days. In a number of instances most thorough searches failed to discover any mosquitos and it has been thought that perhaps there was no danger in transporting disease from one port to another by means of mosquitos infected by malaria or yellow fever organisms. Medical inspectors have now been instructed to examine carefully each vessel on different days after leaving port and it is hoped that more definite knowledge will soon be gained in regard to the life history of mosquitos on shipboard.

OBSTETRICS AND GYNECOLOGY.

Antipyrine and Puerperal Septicemia.—The value of antipyrine as a febrifuge in ordinary conditions is well known but the drug has not found a wide field of usefulness in this country for the fever of puerperal septicemia. But H. CURSCHMANN and P. ZWEIFEL (La Sem. Méd., 1902, No. 25) recommend it very highly in a daily amount of 2 to 4 grams divided into doses of 0.50 grams each. It not only reduces the fever, but also quiets the circulatory and respiratory excitement and seems to combat the septic process directly. They have seen severe cases do exceedingly well under it, especially when associated with supporting and stimulating measures like alcohol, strychnine, camphor, etc. The appearance of the antipyrin rash is very rare and according to Curschmann does not indicate cessation of the drug. Tolerance for the drug in this disease is, according to these observers, marked even when asthenia is already present.

Prophylaxis of Puerperal Mastitis.—In order to prevent the onset of complications upon the part of the breasts during the puerperium F. AHLFELD (La Sem. Méd., 1902, No. 25) adopts the following simple measures. The patient washes the breast, areola and nipple every two days very carefully, dries them thoroughly and applies 10 per cent. solution of tannic acid in 96 per cent. alcohol. This astringent and hardening lotion is allowed to evaporate thoroughly before the clothes are put on. He has followed this treatment for two years now and succeeeded in preventing breast complications in all his obstetrical cases.

Hystero-Kataphraxis.—The meaning of this new word is the inclusion of any viscus, for example the uterus, within supporting metal sutures as a medium of replacement. A. CATTERINO of Camerino, Italy (C'blatt f. Gynæk., 1902, No. 26), has devised the following operation, which he denominates by this term as a substitute for ventrosuspension or ventrofixation or as a more secure type of these operations. The steps of it after the usual method of opening the abdomen, exposing and bringing the uterus into the wound a gold- or pure-silver-wire suture is passed through all the layers of the abdominal wall except the skin, thence through the broad ligament close to the uterus opposite the juncture of its lowest and middle third and from this point in reversed order through the broad ligament and parieties on the opposite side. A second suture is passed in the same manner above this around the organ just below the insertions of the round ligaments. Either before or after the abdominal layers are apposed the wires are twisted together and then the skin is sutured. Instead of two sutures, only the upper may be used. Again both may be passed like Halstead's intestinal mattress suture, namely after passing the lower suture, instead of cutting the wire, it is carried along between the aponeurosis and the skin of the side of its emergence and then entered as before on that same side at the level for the upper sling. In this manner on one side both free ends will be twisted together, while on the opposite the continuous line of wire will be seen passing from above downward. Catterino states that

its results are good as a means of support but does not discuss its attrition upon the structures concerned.

Dysmenorrhea in Young Girls.—Gynecologists distinguish in their classifications an idiopathic and a symptomatic variety of this disorder. Where there is no disease or disorder of the uterus or the adnexa, the dysmenorrhea constitutes the whole trouble. With certain individuals the dysmenorrhea is transitory and lasts but a few years, or disappears or amends itself after the first two or three years of menstruation, or else disappears after the first coitus. With others this is not true; it neither diminishes nor intensifies the disorder, but pregnancy and the subsequent delivery produce its abatement. In these forms there is no lesion or malformation, since function of the organ produces a cure. It is not always the thin, poorly developed young woman in whom one finds this condition, but also in the large well-developed young women and girls; in fact, even in those inclined to obesity. Examination of the internal genitalia reveals most often the real cause of this so-called idiopathic dysmenorrhea. The uterus is of the infantile type, small cervix with partially occluded os. Often the ovaries are smaller than usual, and indeed infantile. Slight flexion of the uterus on the cervix is the generally admitted cause of this disorder, but this slight mechanical obstruction does not correspond to the generality of the facts. For though this would explain the cause of the pain before the flow, it does not explain satisfactorily those cases where the dysmenorrhea is intermittent, or where the pain is present after the establishment of the flux. Again, the strength of the argument of mechanical obstruction is lost when we recognize that age very often does away with the dysmenorrhea, though the malposition still remains. Therefore we are compelled to believe that the cause is not to be found in one single condition, but that there is a multiplicity of factors concerned; that there may be general tardiness of genital development, superimposed on a general nervous excitation manifesting itself in this manner; that it is simply a referred manifestation of causes foreign to the locality. In view of the fact that the author thinks that many of the cases are produced by the infantile ovary, he gives them ovarian extract, and also static electricity to tone up their nervous systems. G. BOUILLY (La Gynéc., June, 1902).

Advantages of the Knee-chest Position.—A method was advocated about a year ago by H. A. KELLY for opening and exposing the female bladder, which consists in placing the patient in the knee-breast posture and then letting air into the bladder through a catheter or speculum. An artificial anemia of the bladder is induced by this posture and the facility of exposure has extended the field of vesical surgery. The author (Jour. Am. Med. Assoc., August 9, 1902) still further extends the field by reporting a case in which a large ureteral calculus was removed through this incision in the vesicovaginal septum after dilating the bladder with air. The calculus was near the ureteral opening, but could not be extracted through the urethra, although distinctly seen on endoscopic examination.

THERAPEUTICS.

Intraspinal Injections of Cocaine.—The mechanism of the action of intraspinal injection of cocaine has been the subject of experimental studies by VALENTI (Archiv. di Farm. Sper., June, 1902). The question has been raised whether anesthesia is due to direct influence of the alkaloid upon the nervous elements or whether the introduction into the spinal canal of a hetrogeneous fluid may not be the principal or secondary factor in the production of anesthesia and post-operative nervous phenomena as well as increased temperature. Valenti, through injection into the spinal canal of a liquid in greater quantity than the cephalo-rachidian fluid previously extracted, has been able to exclude increased pressure and compression of the nervous elements through introduction of a hetrogeneous liquid, as a factor in the production of anesthesia. The conclusion is drawn that the anesthetic action of endo-rachidian injections is due solely to the cocaine, which acts upon the orgin of the spinal nerves, paralyzing their sensory fibers. The secondary or post-operative phenomena, analogous to those commonly observed in acute cocaine poisoning, are believed to depend upon the toxic action of the alkaloid, which, through tardy absorption by the arachnoid, passes slowly into the general circulation.

Toxicology of Exalgin.—Many cases of poisoning with exalgin are recorded in literature, and that small doses may occasionally be followed by untoward symptoms is again seen from the article of O. SEIFERT (Wien. klin. Rundsch, June 29, 1902). A patient suffering considerably from headache and insomnia received half a gram of the drug in the morning; during the afternoon she complained considerably of palpitation of the heart and a feeling of oppression. After subsequent doses of the same size the distress became even more marked and was coupled with formication, vertigo, spots before the eyes, tinnitus, dilatation of the pupils, increased pulse rate and a pronounced cyanosis of the visible mucous membranes. After two days of active treatment with stimulants, warm baths and diuretics, the symptoms had disappeared. That great care is to be exercised in the administration of exalgin is evident.

Blood-alkalescence.—The blood-alkalesence is defined by K. BRANDENBURG (Zeitsch. f. klin. Med., vol. 45, Nos. 3 and 4) as the sum of the alkaline valencies as determined by litmus paper. But since litmus is not affected by one of the most important acids present in the blood, carbonic acid, it is necessary to estimate also the degree of concentration of proteid matter in the blood and the free and combined alkali. The proteids possess to a marked degree the power to bind alkali. The free alkali can, however, be separated readily from the proteid alkali by dialysis since the former is easily diffusible. The degree of alkalescence of the blood varies in the healthy, in individuals with anemic or concentrated blood and in many febrile conditions directly with the amount of albumin and water in the blood, so that in these cases titration also gives evidence as to concentration. In uremic coma the alkalescence is sometimes lower than the amount of albumin would indicate so that a pathological acidification must be assumed. The ratio between diffusible and total alkali is, in the healthy, as 1:15; where there is less proteid, up to 1:3; while if there is more than normal it reaches 1:8. The normal proportion for serum is 1:2, for the corpuscles 1:8. The freezing point of arterial blood was found to be 0.56-0.58° C.; it varies with the amount of carbonic acid in the blood.

Detection of Bromine.—A simple method for detecting small amounts of bromine in urine or saliva is given by G. STICKER (Zeitsch. f. klin. Med. vol. 45, Nos. 5 and 6). The iodine is first separated by adding sulphuric acid, saturated with the fumes of nitric acid and then shaking out with carbon disulphide. On now adding chromic and sulphuric acids, heating and holding paper saturated with fluorescein over the flask, this will be colored brown. In saliva bromine could be detected only after larger amounts (1 to 2 grams) had been taken. In normal secretions and in the various organs no bromine was ever found.

Characters of Lymphocytes.—A distinctive difference between lymphocytes and other leucocytes could not

be found by A. WOLFF (Zeitsch f. klin. Med. vol. 45, Nos. 5 and 6) since he discovered in them not only granulation and active motion but also could speak for the existence of an active lymphocytosis under certain conditions. The different organs of the hematopoietic system in post-embryonal life do not produce the same cells since the bone-marrow yields most granulocytes, the lymph nodes most lymphocytes, and the spleen the large, mononuclear elements. But in all three localities there exists the so-called indifferent lymphoid-cell, which has retained its power of differentiation and which can vicariously assume the functions of the others. The spleen may readily take on myeloid functions in various pathological conditions not connected with leucemia, such as lead anemia, pernicious anemia and sepsis from erysipelas. The indifferent lymphocyte has its seat of predilection in the bone-marrow and normally yields only granulocytes, but may, in any of the blood-forming organs develop into the other blood-cells if there is demand for them. It is a non-granular cell with round or slightly notched nucleus which is basophile in reaction to dyes. Besides the two generally accepted types of leucemia the author also speaks of a transitional form, characterized by large lymphocytes, which, however, are not true lymphocytes, but the indifferent lymphoid cells above mentioned. Leucemia itself is not considered as analogous to tumor-formation but depends upon a metaplasia of the hematopoietic organs, induced by unknown causes.

Gastric Lavage in Infants.—There is certainly nothing new in the application of gastric lavage to infants, but just as certainly it is a procedure to which the practitioner resorts rather rarely. M. BABONNEIX (Ann. de la Policlin. de Paris, June, 1902) points out that it is a method of treatment of peculiar value in some of the gastric disorders of the very young, and one which, moreover, is associated with very little danger if properly employed. The apparatus is that generally made use of, except that a urethral catheter, number 8 to 30, is substituted for the stomach-tube. Solutions of various kinds have been suggested for the lavage, *e. g.*, of sodium benzoate, thymol, weak peroxide, etc., but the author gives preference to normal salt solutions. The temperature may generally be made lukewarm, but if there be a tendency to collapse it should be raised to body-temperature, or if there be fever it may be lowered. The dangers of the procedure are: Introduction of the tube into the trachea, gastric hemorrhage, tetany (if the method be employed for a great length of time), and finally an increase of the previously existent weakness or collapse. The last is the most real of all the dangers, and often constitutes a contraindication. It is indicated in cases of acute febrile gastro-enteritis in which the symptoms of gastritis are prominent, in cases of dilatation of the stomach, and in many cases of infantile cholera. In these conditions, it holds a place of great importance.

Trunecek's Serum in Arteriosclerosis.—In a spirit of some incredulity G. ZANONI and C. LATTES (Gazz. degli osped., July 13, 1902) undertook the treatment of three cases of general arteriosclerosis by this means, with results sufficiently encouraging to justify the paper devoted to the subject; these results being considered no as an absolute indication of the serum's value, but rather as illustrative of the class of cases in which it may be helpful. Headache, tense pulse, dyspnea, attacks of angina and albumin in the urine, together with the sclerotic arterial condition, furnished the indications for treatment. Hypodermic injections of 1, increased to 2 c.c. upon alternate days, and continued till as many as 40 were given, procured amelioration or entire relief of all symptoms, but very little if any change was noted in the arteries; from which the authors conclude that the influence of the serum does not depend upon its power to control or neutralize the deposit of calcium phosphate in the vascular walls, as claimed by its originator, but upon chemical modification of the blood-serum and upon stimulation of nutrition and consequent increased functional power (contractility, elasticity) of cardiac and vascular fibers.

Iron in Latent Malaria.—The frequency with which malaria recurs in patients who have been apparently cured by prolonged and systematic treatment with quinine, and in whom a second infection could be excluded, has been noted by many physicians. Riva-Rocci, in 1901, discovered that injections of the salts of iron induced typical malarial manifestations in those in whom the malarial infection seemed to be eradicated, and advanced the theory that malarial germs might persist in the latent state in the parenchyma of spleen and liver, from which the hyperemia brought about through administration of iron caused them to be again carried into the general circulation, where their presence would give rise to reappearance of malarial symptoms. COVA and BONI (Gazz. degli osped., July 13, 1902) contribute a description of three cases which give some support to this theory. Two of the patients had a history of malaria cured by quinine some months before seen. Injections of iron arsenate used to combat chlorosis caused in both a reappearance of chills and fever. In the third case, that of an anemic baby, in which no satisfactory history could be obtained, injections of iron were used, not only as a curative measure, but also in order to ascertain whether latent malaria were responsible for the child's condition. The occurrence of a typical malarial seizure after two weeks' treatment with daily iron injections, led the writers to the belief that the value of iron in malarial cases may lie not only in its power to combat the anemia which so commonly follows, but also in its serving to diagnose latent malaria, and through its effect upon spleen and liver, to dislodge the parasites from those organs and possibly from the medulla of the bones, driving them into the general circulation where alone they may be destroyed by administration of quinine. The question of secondary infection in these cases is met with fairly convincing arguments for the exclusion of this possibility.

Gelatin as a Hemostatic.—Much has been written lately concerning the subcutaneous injection of gelatin for controlling hemorrhage, and coupled with its use the danger of tetanus infection. KRAUSE (Berlin. klin. Woch., July 21, 1902), from a résumé of the literature, states that there is no doubt that tetanus infection has followed this procedure and that ordinary commercial gelatin is apt to contain the bacillus. He believes, however, that tetanus in such cases has always resulted from improper or insufficient sterilization, and proposes a method to overcome this difficulty. The gelatin is dissolved in sterile normal salt solution and then subjected in a proper container to the action of live steam at 100° C. for half an hour. This process is repeated on five successive days, and if desirable the material can then be submitted to culture tests. If an alkaline solution is desired the admixture of decinormal soda solution may be done before sterilization. This preparation, if hermetically sealed, can be kept for many months.

Septic Endocarditis.—A case of this disease following suppurative tonsillitis is reported by KLOTZ (Deut. med. Woch., July 17, 1902) which was successfully treated by the injection of silver salts. The patient, almost in extremis, was given 9 c.c. of a 1 per cent. solution of collargol by injection into one of the arm-veins. This was followed by a chill and rise of temperature, but also in a few hours by amelioration of symptoms. Her condition being worse again on the following evening, another injection of 8 c.c. was given

with a like effect. Two days later a third injection of 7 c.c. was found necessary, but the result was gradual and permanent improvement, and the patient made a good recovery.

A New Germicide.—A combination of commercial carbolic acid and lysoform has been devised by ELSNER (Deut. med. Woch., July 17, 1902), which he claims is free from the disagreeable odor and toxic properties of its constituents. He has given it the name "carbollysoform." It contains 66 per cent. of lysoform and 33 per cent. of ordinary carbolic acid. Tests made with cultures of staphylococcus pyogenes aureus show that in a 3 per cent. solution it is superior to a 1 per cent. solution of lysol and in a 5 per cent. solution, to a 3 per cent. solution of a carbolic acid, without their corresponding disadvantages.

Regnault's Mixture in Paludism.—The advantages of this method of treatment are emphasized by V. P. DE SANDE (El Médico Titular, July 16, 1902) in those cases in which through personal idiosyncrasy against the drug, or other reason, the use of quinine is inadvisable. A special point in favor of Regnault's mixture is its favorable influence upon the malarial crisis; the author's experience coinciding with that of Regnault in the attenuation of all symptoms shortly after administration of the remedy, chill and fever being of much shorter duration. Ten cases were given the treatment as outlined by Regnault:

℞ Tinct. iodin.....gram. 4.0 (gr. lx.)
Potas. iodid.....gram 4.0 (gr. lx.)
Aquæ distil.....gram 100.0 (℥iii.)

M. Sig. A teaspoonful in a little water in the beginning of the malarial seizure, and a second dose 15 or 20 minutes later, if there is not rapid improvement. It is believed by the author that this remedy may be a valuable complement of quinine in the treatment of paludism, in that its influence is active during the malarial seizure, when the plasmodium is in process of multiplication by segmentation; and that this mixture may constitute an agent for the destruction of the pathogenic organism at the time of the crisis, when quinine is considered ineffective. Further, this remedy is valuable in those irregular fevers in which it is impossible to anticipate the time of the seizure.

Injections of Paraffin in Atrophic Rhinitis.—In order to overcome the enlargement of the nasal fossæ, which in patients affected with atrophic rhinitis causes stagnation and decomposition of the secretions upon the mucosa, A. BRINDEL (Jour. de méd. de Bordeaux, July 27, 1902) in 10 cases practised interstitial injection of paraffin into the inferior turbinated bones, Eckstein's paraffin with a melting-point of 60° C. being used. By this means an artificial hypertrophy of the inferior turbinated bones was produced, and in the cases so treated, the crusts disappeared in a few days and odor subsided. Such reconstruction of the inferior turbinates seems to have effected a complete cure in every instance, but the author feels that further time should elapse before interstitial injection of paraffin can be declared a radical cure for that most obstinate affection, ozena.

Endovenous Injections of Oxygen.—The way to endovenous injection of drugs was first opened up by Guido Bacelli; he it was also who first used inhalations of oxygen at the death-bed of Victor Emmanuel II. To Gärtner belongs the honor of uniting the two remedial measures in endovenous injection of oxygen in animals. Of peculiar interest is the work of F. MARIANI (Gazz. degli osped., July 27, 1902) in this line, in that he not only injected large quantities of oxygen endovenously in animals, but also in man. The patient so treated was a victim of pulmonary tuberculosis, and was moribund when first seen by the author. The gamut of all known remedies for this condition had been run without avail, and it was determined as a last resort to essay the endovenous injection of oxygen. By means of an apparatus especially devised by Mariani, 120 c.c. of oxygen was injected into the plantar vein within a space of 45 minutes. This site of injection was preferred to the arm in the belief that in the longer passage from the foot to the heart the oxygen would more probably be absorbed by the blood. Previous to the injection the patient was cyanotic, body covered with cold sweat, dyspnea severe, respiration 54, pulse 144, temperature 28.5. Five minutes after the injection there was a change for the better, and within an hour there was a diminution of 14 in the respiration and 24 in the pulse. Improvement continued throughout the night, but the following day a relapse occurred and death seemed imminent. At the patient's request a repetition of the operation was attempted, but isolation of a vein was impossible without extensive dissection, and the attempt was abandoned. From the work done the author draws the following conclusions: (1) That oxygen is completely absorbed by the red cells, when injected endovenously, and such injection does not give rise to gaseous emboli; (2) that injections should be made slowly, not more than 500 c.c. being injected in an hour, so that the oxygen may have time to be absorbed; (3) that in clinical therapeutics endovenous injection of oxygen is valuable in pulmonary affections with severe dyspnea, formation of oxyhemoglobin being favored thereby.

Treatment of Chorea.—Any contribution which is made by Prof. COMBY of Paris to the therapeutics of infancy, especially if advanced with the enthusiasm which marks his recent article on chorea (Méd. mod., July 2, 1902), is bound to command the attention of the profession. He summarizes his method, which he believes to give better results than any other in vogue, as follows: Absolute rest in bed for at least 15 days; relative isolation, no games, no intellectual work, *i. e.*, cerebral repose; no wines or other alcoholics, no tea or coffee; only water or milk to drink, combined with a vegetable diet, and in case of arsenic treatment absolute milk diet. The medication is rather striking. He employs only two drugs, arsenic or antipyrine. The arsenic is used in the form of arsenious acid, which is given in frequent doses very highly diluted for eight to 10 days. The dose of the drug runs from 30 mgms. at the commencement to 170 mgms. per diem at the height of the treatment, notwithstanding which the author has only once observed toxic effects. The tolerance depends on the manner in which the drug is administered, and on the fact that the kidneys are actively stimulated by large amounts of water. If antipyrine is used, he gives 50 cgms. (¾ of a grain), repeated as many times daily as there are years in the child's age.

Action of Urotropin.—Bacteriological examinations of urotropin, lead A. GOETZL and G. SALUS (Zeitsch. f. klin. Med., vol. 45, Nos. 5 and 6) to the following conclusions: (1) Urotropin is an active antiseptic which acts bactericidal upon C. typhi, coli, proteus, staph. pyogenes, in 5 per cent. solution, at room temperature; (2) in 3 per cent. solution it retards considerably ammoniacal fermentation of urine; (3) it is particularly active towards the typhoid bacillus; (4) by raising the temperature to 37°, the antiseptic action is enhanced; (5) the action is dependent only to a slight degree upon formaldehyd since the amounts of this substance split off are only minimal; (6) upon moulds, urotropin has no effect; (7) the presence of albumin does not reduce the antiseptic action; (8) concretions of uric acid kept in 1 per cent. urotropin solution, lose 70 per cent. of their weight in 14 days. In conclusion, the authors coincide with others upon the high therapeutic value of the drug, but recommend larger doses.

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SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor,
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in *registered* letters.

LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, SEPTEMBER 13, 1902.

THE STRENUOUS LIFE.

WHILE the Nation is congratulating itself and President Roosevelt on the latter's recent narrow escape from death or serious injury by an ill-managed trolley car, it is natural that we should be reminded of what seems a leading characteristic of this man; namely, that he consistently lives and does not hesitate to preach to us the advantages of resolute and vigorous living—"the strenuous life." Like many proverbs, this phrase is trite already in every English-speaking land; also, like many proverbs, it is full of the most philosophic wisdom. To have put this concept, the epitome of the spirit of the times, so earnestly before men's minds is well-nigh of itself enough to mark the President not only as the man of the hour, but as the promised prophet of the future. For the generality of men this phrase means much. For what does it stand to the physician?

To no class in a greater degree than to medical men does this much-meaning expression appertain. No profession impels its members to a greater general strain than does that of medicine. None takes deeper hold of every aspect of a man's being, of his body on the one hand and on the other of his intellect, his feelings, and his will. The average physician day by day leads the strenuous life, and for the most part he leads it well. Here as elsewhere, of course, relativity is complete, and a day "strenuous" for one might seem to his neighbor an unusually easy day. In such terms, purely quantitative, might we define one sense in which strenuosity applies to the life of the medical practitioner—labor more or less hard, hours more or less long without intervening rest, so much worry, so many cases a day, each with its wear of hand and brain. Each physician concerned will see that the amount of this sort of activity is adapted to his desires, or to his merits, or to his "luck."

In the general strenuous idea of Theodore Rooseelt there is something more than this. As applicable to medicine and its practice there is much more, and part of that increment is of especial force and meaning. It is only from an unworthily sordid viewpoint that a medical practiee can be appraised and valued merely in proportion to the actual hours it consumes weekly in the care and study of patients. The number of these hours, other things being equal, may be an accurate index of the monetary income of the practitioner; yet he, more than the man of any other class, save perhaps the clergy, knows that this money is not the best reward of the true physician's days. To very many this strenuous life is in great part its own reward, full always of the unexceeded zest and satisfaction of useful living. On these other modes of payment for human service depends the proper qualitative gage of a strenuous medical life. These things help to measure success in the struggle against more things than poverty.

Outside of actual practice the medical man has privileges helping to strenuosity qualitatively considered, and these, too, help to make his life well worth the living. Among other privileges the physician has the social meetings with his professional friends in the medical societies, and these count for much to him if he does his part. He has the satisfaction, by no means small, of keeping more or less in touch with the worldwide development of biology. He has interest in his college still, and attends alumni reunions occasionally, renewing thus his surely strenuous youth in the medical school. He has or may have something of original research to do, thus adding his mite to the yearly gains of our ancient medicine. All these are but examples of possible elements of strenuous medical life.

But again, and quite outside of medicine, outside of science even, the medical man has opportunities of realizing this strenuous life more fully

than on the average he does. In three phases especially should it appeal to him: The American physician is a citizen of no mean country; he is a forceful member of the greatly privileged class of teachers, as his doctor's diploma implies; and he has that intimate and far-reaching experience of mankind which best fits an individual to be a philosopher and a friend of all the world. In these three things, among others extraneous to his practice, lies much of the possibility of a strenuous life as the popularizer of the phrase means it. The physician has opportunity to do his duty vigorously as a citizen, to enter as he can into politics, that his technical knowledge and experience may be of use in an ever wider sphere. He has opportunity to make it his constant endeavor to promulgate both physical and moral right-living. He has opportunity and need, for purposes of his own personal satisfaction and happiness, to extend his view beyond empirical science now and then into the profounder depths and wider regions of philosophy and of the whence and why and whither of humanity. Thus in doing and in knowing may the physician round out his days in a strenuous life whose satisfactions reach far beyond all else he can attain.

"THAT DOT-LET ON THE EYE."

THE refusal of the authorities in Philadelphia to grant a charter to a proposed "optical college" with a curriculum of two months is, it strikes us, not only a step in the right direction, but a gigantic stride forwards. At all events, it shows in this case that the angels do not always fear to tread even on the toes of the by no means fools who are naturally anxious to rush in, and it will also serve as a protection to one of the specialties that is much in need of it. For years ophthalmology has been the favorite and profitable field for the charlatan and empiric; and to such a degree has it been worked by unscrupulous and advertising quacks that the simple and easily understood appellation of "oculist" has grown into a term of reproach, and has become an indication of such ethical irregularity, that its use by members of the National Society has been forbidden by its constitution.

That this is natural is evident on a little reflection, for it is here, as it is also in venereal diseases, that the very conditions of treatment are found which give the most striking results with the least outlay of knowledge. For as there are few cases of syphilis that will not show signs of improvement from the use of mercury and the iodides, so also are there few ocular lesions that do not grow better under the instillation of atropia. This may be met by the statement, which is undeniably true, that in certain cases, particularly where the intraocular tension is abnormally high, it does positive harm, as in glaucoma and serous iritis, but fortunately for the quack and unfortunately for the legitimate specialist, these cases are in an infinite minority as compared with the combined majority of all the others. Ambitious general practitioners, too, have been known to mistake the initial stages of iritis for conjunctivitis, so that the Mulberry Sellers "eye-drops" with its scattering shotgun has often hit the mark with some of its pellets of atropin when the family doctor's single rifle-ball of astringents has missed. A. relates this "cure" to B., who, finding that a dilated pupil is an aid to the defective vision of incipient cataract, promptly soothes with it the corneal ulceration of C., and *fama volat* the whole alphabet is in line, and the "millions in it" pass not to the hands of the men who have made a life-study of the subject, but into the pockets of those who know but little and care still less.

All this and more has the ophthalmic surgeon had to contend with; but as long as he *was* a surgeon it mattered little, as operative work was his salvation. But the success of the early days hastened by its very skill the arrival of the time when the necessity for such operations had, to a great degree, passed away. The preliminary crop of cataracts had been garnered and stored, while improved methods of general treatment had decreased the succeeding number, and the early adjustment of glasses had lessened the necessity for tenotomies, so that the office-work of those engaged in the specialty gradually resolved itself more and more into a routine of fitting lenses.

But even here competition from the outside entered largely, and as the optician became more used to filling prescriptions he grew bolder, and the so-called "refractionist" sprang into existence, fitting cylindric and even prismatic lenses, and at times doing incalculable harm and yet escaping the evils of failure and consequent loss of patronage, simply because the vast majority of the cases seeking his aid required only simple glasses. That there was such a thing as either relative accommodation or latent hypermetropia, he did not know, and spasm of the ciliary muscle or insufficiency of the recti suggested nothing to his mind. A realist only, he took things as they seemed, and fitted each eye as if it had been a separate metal optical machine, satisfied with a combination of the two that gave the highest

visual acuity to each, and often suggesting lotions and nostrums as well as giving advice in regard to the general care of the eyes.

Then the department stores, thinking that it was likely to prove a profitable venture, added an optical annex to their shops and widened their commercial phylacteries with glowing advertisements of the convenience of their "parlors" and the skill of "*our* trained refractionist," with a few telling words thrown in as to the advantages to the suburban shoppers of finding everything under one roof, and the economy of commanding the services of an educated specialist with no fee to pay beyond the price of the glasses.

Meanwhile the profession at large were making every effort to protect themselves and the public. Laws were enacted to prevent quackery and put a stop to advertising, resolutions were passed condemning the prescriptions of medicines by apothecaries, and interstate regulations went into force compelling all physicians resettling within their jurisdictions to undergo fresh examinations. A graduate of one of the leading colleges of the country, a member in good standing in all his societies at home, might move into another State and be prohibited from prescribing a Dover powder or advising a poultice, until he had obtained a license, while "the man from nowhere" can enter almost any community, can flaunt his occupation of "optical expert" and his individual attainments therein in the faces of its inhabitants, and misuse the strongest of all remedies locally in their eyes, so long as he abstains from internal medication; in other words until he intrudes on the domain of the general practitioner.

We do not mean by this to decry the laudable efforts of the profession to protect the public, nor do we impugn their motives. Medicine is a science and not a trade, but the laborer is worthy of his hire, and man cannot live by bread alone. But if the trunk of the tree needs a sustaining prop, surely the branches require a careful pruning and thinning out lest they fall to the ground and wither. There is more in modern ophthalmology than the use of atropia, and the life of the medical student at the present day is not all beer and skittles. Most of the higher schools demand, if not always a college degree, at least the satisfactory evidence of a previous education, and the course has been generally extended to four years. Add to this a year as an interne in a hospital, and a year or two more spent in special training, and place against the sum total the prospectus of the proposed college, which seeks "to establish an institution in which should be provided a course of instruction in the science relating to the structure of the eye, and the laws of vision, and to qualify its students as skilled opticians. They would also be instructed so they could recognize *any* pathological condition in the eye and be able to refer the applicant to the proper course of treatment." *The course of studies was to be completed in two months.*

The charter was not granted in Pennsylvania, but if it is given in other States, it would be better perhaps for the young graduate to seek a more lucrative employment—such, for instance, as keeping a livery-stable in Venice.

"THE UNSPEAKABLE SCOT."

PERHAPS now that "Scotland 's burning" at the affront of Mr. Crosland's satiric book and all the blue bonnets are over the border in their efforts at retaliation, it would be well to listen to the piping pibroch of an eminent Scotch physician, which has gathered volume enough to make its wailing audible amid the din of fight. This is, strange to say, a eulogy on the merits of Caledonian cookery and a warm testimonial in favor of the national dishes of haggis, scones and oatmeal. To this may be added a general and *ipse-dixit* assertion that the clansmen and overborderers are not affected with dyspepsia and that dentists are unknown in the "land of the leal." There have been hitherto few defenses of Gaelic cooking; probably because so many people have been in Scotland.

The Scots are a hardy and a cleanly race, as tough and well-scrubbed as the golf-balls of their national game, but statistics of non-fatal diseases are difficult to gather, and it would take more than the word of one dour physician—even if he were Ian Maclaren's *MacLure* himself—to convince the Anglo-Saxon that a pudding of entrails, chopped up with leeks and boiled in the maw, is any more digestible than it is appetizing.

As for scones, once, and only once would be the limit of saying "Zu Zu" to the Highland grocerman, while bannocks, which their own proverb says "are better nor na kin bread," are certainly not better than anything else. It is, however, for oatmeal and the use of the cereals that we are indebted to Scotland, and the increase of their consumption in this country has been most marked within the last ten years. To be sure they are used by us as breakfast food, pure and sim-

ple, and it is rather remarkable that Scotland is about the only country that has not contributed some national dinner-dish to add to the gaiety of nations, but her peculiar specialties are seldom seen or smelt outside of some Gaelic banquet given by patriotic sons in honor of their "ain countree."

So far as dentistry is concerned, while the Scots have certainly made less progress in it than they have in either medicine or surgery, it is still an open question whether the supply equals the demand, or if their teeth are not treated by the same heroic method that the aged chieftain applied to his foes and who consequently had no enemies to forgive on his death-bed—simply because he had killed them all. The Highland gillie pulls out the decayed teeth of his cattle, and it is only natural therefore to suppose that he would do as much for his family, leaving them to pursue in their later years the passive and inevitable course of old Uncle Ned when he had to let the hoecake be. But as a nation the Scotch are not addicted to sweets, nor are they blessed with a pie belt or crowned with a doughnut zone. They are, however, given to an outdoor life with athletic sports, and to a plain if unattractive diet, and an ounce of these is worth a pound of pepsin.

Sandy is a proverbially canny individual, and if there is no gold in his teeth we have a shrewd suspicion that it is because he prefers to keep it in his sporran. There are some flowers that waste their sweetness on the desert air, but "it 's na so wi' the thistle."

THE GERM OF SUMMER-COMPLAINT.

THE daily papers during the present week have announced with sensational accessories of various kinds that the specific microbic cause of summer-complaint had been isolated and one of the greatest etiological problems in medicine solved. As to the truth of the rumor we have no way of judging, though that there is something trustworthy in it would seem to be clear from the fact that Prof. Welch of Johns Hopkins lent to it the sanction of at least partial confirmation. The discovery is said to have been made by two young physicians, Drs. Duval and Bassett, working under a research grant from the Rockefeller Institute at the Thomas Wilson Sanitarium for Children, just outside of Baltimore. No details of the discovery, beyond the startling main fact itself, were obtainable before going to press.

Summer-complaint is one of the gastro-intestinal diseases, with such a marked specificity of symptoms that almost from the rise of bacteriology the impression has obtained that it is due to a specific germ. More than one bacteriologist of prominence has been sure that he had isolated the offending microbe, and at least two or three false announcements have been made. It is, however, very possible that the Baltimore investigators have succeeded where others failed. We sincerely hope that the rumor is true, since the discovery would be a credit to American medicine. But we deprecate the unseemly way in which the sensational publication of the alleged discovery has been permitted before any formal scientific statement of the results was possible. It seems unfortunate that the name of the Rockefeller Institute should be dragged into what may prove a mere canard. Almost invariably the ultimate scientific value of an announced discovery is in inverse ratio to the amount of noise made over it when first brought to public notice. Let us hope that this will not prove true in the present instance.

ECHOES AND NEWS.

NEW YORK.

Business Committee of the Medical Society of the State.—The following gentlemen have been appointed as business committee by the President, and will have charge of the program for the next meeting, January 27-29, 1903, at Albany: Dr. Ernest Warde, chairman, 471 Delaware Avenue, Buffalo; Dr. Hamilton D. Wey, Elmira; Dr. J. Montgomery Mosher, Albany.

City Hospitals Badly Off.—The structural conditions of Bellevue Hospital are described by the trustees of Bellevue and allied hospitals in a report sent to the Mayor as antiquated and unsanitary. The report also dwells upon the inadequate facilities for the reception and examination of patients, the overcrowded sleeping rooms and unwholesome quarters of the employees, the indecent conditions of the prison wards and the unsatisfactory method of cooking and serving the food of the patients. The trustees recommend the erection of a new hospital. In the paragraph on the prison wards the report goes on to say: "The prison wards remain a disgrace to the hospital and to the city. Both wards are in the basement. The men's ward is about 40 feet long by 20 feet wide and eight feet high, with two windows on only one side, giving about 500 cubic feet of air to each of the 13 beds, the minimum exacted in the tenement houses by the Board of Health being 600 cubic feet. The report says that Gouverneur Hospital is the only modern fireproof hospital owned by the city. The Harlem Hospital has been allowed to get into a very dilapidated condition and the Fordham Hospital is in need of repair. Tabulated statements accompanying the report show that during the months beginning February 1, 1902, and ending June 30, inclusive, 12,124 patients of all nationalities were admitted into Bellevue and the allied hospitals. The report shows also that during the months of Feb-

ruary, March, April, May, and June the expenditures and liabilities were $346,173.68.

Work of the Fresh-Air Charities.—Although there are other conditions besides excessive heat which contribute to sickness among the children of the poor during the summer months, the absence of the usual heated term this summer has reduced the contributions to our fresh-air charities to an extent which has considerably cramped their operations. The testimony of these organizations goes to show that the demands upon their respective lines of work have been equal to those of last year, when the summer was exceptionally hot. The managers of the Sick Children's Mission of the Children's Aid Society say that the applications for medical attendance upon sick children of the poor have been quite as numerous as those of last summer. The capacity of the society's Health Home at Coney Island has been taxed to the uttermost during the entire season. At this health-giving resort 3,118 mothers and sick infants have been entertained for a week, while 4,779 poor women and children have spent a pleasant day there. At the society's Summer Home at Bath Beach 4,150 delicate children, selected from the poorest tenement quarters of the city, have been treated to a week's outing, while 500 poor cripples and little children from the various day nurseries of the city have enjoyed one or two weeks' sojourn at the home. In addition to these, the society has given 2,600 poor children a pleasant day's outing at the Boys' Farm at Valhalla, N. Y., and 2,750 boys have been enabled to spend a week at that picturesque resort. In connection with the work of the Children's Aid Society alone these statistics show that even in a comparatively cool summer there is no lack of subjects upon whom the benefactions of charitable people can be advantageously expended, not simply in conferring happiness, but in establishing health and reducing the death-rate of the city.

CHICAGO.

Return of Dr. Senn.—Dr. Nicholas Senn recently returned from St. Petersburg and a long journey to the Orient.

Rush Medical College.—At a recent convocation the President of the University of Chicago, Dr. Harper, made a statement to the effect that the medical department of the University (Rush Medical College) had been paid a gift of $50,000 and that the expenses of the department for the year had been less than the estimated amount.

Death-Rate During August.—According to the Weekly Bulletin of the city health department there were 2,330 deaths from all causes reported to the health department during August, 1902, or 161 more in number and 3.9 per cent. more in the annual rate per 1,000 of population, as compared with the figures of August, 1901. The annual death-rate per 1,000 was 15.06. The report shows that 610 children under one year old, died; that 597 deaths were caused by acute intestinal diseases; 193 by typhoid fever; 177 by violence; 181 by consumption and 136 by heart diseases.

The Suppression of Typhoid Fever.—When the excessive incidence of typhoid first forced itself on the attention of the health department, and when study showed the so-called storm-center to be located in the Ghetto district, efforts for suppression were concentrated in those areas. But the work the department was able to do served mainly to show how futile and inadequate were its resources. Food, chiefly fruit and vegetables, unfit for human consumption, was condemned and sprinkled with kerosene, but the department had no authority similarly to sprinkle with kerosene the 20 per cent. of dwellings found in these areas unfit for human habitation. Typhoid fever contributed in August nearly 70 per cent. of deaths, the comparative numbers being 83 for August, 1901, and 193, or 110 more, for the same month in 1902. This is the greatest number of August typhoid deaths ever recorded in Chicago, the highest number previously having been 182, in 1891. Since then the August deaths have been 179, 76, 52, 59, 64, 42, 45, 62, 34, and 83 for the respective years 1892-1901. These figures are cited to show that the department has been arousing no unwarranted alarm in its utterances on the typhoid situation during the last three or four weeks. They show an increase of fully 57 per cent. in the typhoid mortality of August, 1902, over the average August typhoid of the previous 10 years.

To Analyze Water.—For the purpose of determining to what extent the waters of Lake Michigan are polluted, not only by the sewers of Chicago, but by those of every other town along the lake-shore from the Wisconsin to the Indiana State line, the State Board of Health intends to make an exhaustive series of analyses of the lake-water. Samples of the water will be collected under all possible conditions, and the work carried on by bacteriologists of high reputation. This action on the part of the State officials will be undertaken largely because of the present epidemic of typhoid in Chicago, and will begin as soon as possible. The Board of Education also has decided to have comprehensive analyses made of the city water supply to determine whether it can safely be used by children in the public schools. Dr. John H. Long, Professor of Chemistry in the Northwestern Medical School, will have charge of the work, and the bacteriological examinations will be made by Professor Zeit of the Northwestern Medical School and (probably) Professor Jordan of the University of Chicago. Samples of water will be analyzed in the light of the most recent developments of bacteriological and chemical science. The work will take several weeks, and its results are expected to be authoritative.

PHILADELPHIA.

Dazed by Nitric-Acid Fumes.—Daily papers report the nine days' wandering of Robert Madison, who, three weeks before it began, had inhaled the fumes of nitric acid from a broken carboy of that material. The man cannot tell where he was while away from home, except that he remembers hearing mentioned the part of the city he was in. A man working with Madison at the time of the accident died from the effects of the fumes.

Smallpox Still Exists.—Under the above heading the Press, in a virile editorial, compares Philadelphia with New York and Rochester in the matter of stamping out smallpox during the summer. The comparison is not favorable to Philadelphia, whence, it is stated, we ought to be able to say, like those other cities, that smallpox has been banished. Only two new cases and one death were reported for the week ending September 6, but these are too many.

Typhoid Fever Still Increasing.—Typhoid fever still prevails to a somewhat alarming extent. For the week ending September 6 there were 120 new cases and eight deaths from that disease. It remains scattered throughout the city. Officials of the Bureau of Health are unable to explain its presence in the form exhibited. Reports by the assistant medical inspectors show that in many instances the patients first developed symptoms of the disease while absent from the city on their vacation. There is, however, some significance in the fact that only two cases were reported last week from Manayunk, which is now receiving an abundant supply of filtered water.

CANADA.

British Columbia Medical Society.—The third annual meeting of this society was held at Vancouver, August 29 and 30, under the presidency of Dr. R. F. Walker of New Westminster, B. C. Dr. J. M. Pearson of Vancouver acted as secretary. Among others who were present was Dr. E. C. Dudley of Chicago, who contributed a paper on gynecology. The society decided to extend an invitation to the Canadian Medical Association to convene in Vancouver in 1904.

The French Medical Society of North America.—This association of the French physicians of the United States and Canada was organized in June at Laval University, Quebec. Over 200 delegates were present to listen to some eight papers. The society will convene again in 1905 at Montreal under the supervision of the following officers: President, Dr. Foucher of Montreal; first vice-president, Dr. Ahren of Quebec; second vice-president, Dr. Petit of Nashua, N. H.; third vice-president, Dr. Rouleau of Calgary, N. W. T.; secretary for Quebec, Dr. Art. Simard; secretary for Montreal, Dr. LeSage.

Personals.—Dr. Goldwin Howland of Toronto University has been appointed registrar at the National Hospital for Nervous Diseases, London, England. Dr. C. W. Hopkins has been appointed house surgeon at the Montreal Maternity Hospital. Dr. W. G. Turner has succeeded Dr. von Eberts as medical superintendent of the Montreal General Hospital. Dr. William Osler has been summering at Murray Bay on the St. Lawrence. Dr. C. A. Dugas, who for some years was assistant to the late Dr. Wyatt Johnston, autopsist for the district of Montreal, has been appointed his successor. He will have as his assistant Dr. D. D. MacTaggart. Dr. Herbert E. Roaf, a recent graduate of Toronto University, has been elected colonial fellow at University College, Liverpool, Eng., and will prosecute studies in tropical and zymotic diseases. Dr. Telesphore Parizeau of Montreal has been appointed Professor of Pathology at Laval University, Montreal, to succeed the late Dr. J. A. S. Brunnelle. Dr. G. H. Merrill of Montreal has been appointed to succeed Dr. Brunnelle as Assistant Surgeon at the Hotel Dieu Hospital. He is at present Assistant Professor of Clinics at Laval. He is a graduate of the Victoria School of Medicine of 1876. Dr. James Stewart, Professor of Medicine in McGill University, has returned home after an extended tour of the Canadian Northwest. He considers the climate around Calgary exceptionally fine for the treatment of consumptives and thinks that a large sanatorium for the treatment of tuberculous patients should be erected near that place. Dr. J. A. McKenzie, Assistant Superintendent at the Nova Scotia Hospital for the Insane, is paying an extended visit to the hospitals of New York. Dr. Fred. Montizambert, the Director-General of Public Health in Canada, is paying his annual visit to the Williamhead quarantine station off British Columbia.

GENERAL.

Cholera in Italy and Egypt.—Cholera has broken out in Robilante, Italy, and much anxiety is felt in Rome, where the sanitary condition is especially poor this year, owing to the extreme heat. Out of 300 cases in Robilante 20 have succumbed to the disease. The epidemic is supposed to have originated from a workman returned from Egypt, where, since July 15 there have been 2,238 cases of cholera, of which 1,696 died.

Dr. Schweninger Again.—Drs. Baas (Worms) and Sudhoff (Hochdahl) have uttered an urgent protest in a recent number of the Münchener med. Wochenschrift against the appointment of Schweninger to the Chair of the History of Medicine. They suggest a collective protest from the entire profession. Dr. Schweninger's past career has been microscopically examined, and its evolution traced throughout to the influence of "pulls" in high quarters.

Chairs of Homeopathy in Bavaria.—The governmental bodies in Bavaria, which go by various complex titles, have recently begun to take great interest in scientific affairs. This has now manifested itself in a recommendation for chairs of homeopathy, the initiative to be taken in the famous University of Würzburg. Presumably the matter will be arrested in this stage, as happened within the last few years in Würtemberg under similar circumstances.

Mr. Rockefeller Asked to Aid Smallpox Investigation.—Health Officer Friedrich, of Cleveland, has sent a letter to John D. Rockefeller, calling his attention to the fact that medical science had as yet failed to discover the smallpox germ, and that such a discovery would probably mean the elimination of much human misery and the saving of many lives. He asks Mr. Rockefeller to provide a fund for the purpose of having an investigation carefully carried on.

Inoculation Against Typhoid Fever.—Prof. A. E. Wright of the Army Medical School at Netley, England, has published the results obtained by anti-typhoid inoculation. He was anxious to have inoculation introduced into the army, but Lord Wolseley, then commander-in-chief, refused to consent until Lord Lister urged it upon him. It is demonstrated that a marked advantage was achieved by the inoculation. Fewer cases occurred among those inoculated, and fewer deaths among the inoculated who were attacked by the disease.

Cancer Research in London.—The London Cancer Hospital has completely reorganized its pathological department with reference to investigation concerning the etiology and treatment of cancer. A new laboratory, furnished in the most modern manner, is to be added to the old. Another pathologist, with a salary, is to be joined to the force, now under the direction of Dr. H. G. Plimmer, who will be director of the department. Some of the many problems which have recently arisen in connection with cancer will thus, it is hoped, be brought to a solution.

Insanity Experts' Congress.—The members of the international conference on the treatment of the insane closed on Saturday at Antwerp, after passing the following resolutions: That the confinement of the insane henceforth be abandoned except in the cases of those recognized as dangerous. That the system of boarding insane persons with families be carried out whenever possible. That it is expedient to renew the wish formulated at the congress at Paris for the establishment of schools for special classes of the mentally weak under medical supervision. That the manner of placing patients be entirely left to physicians. That forcible restraint should be condemned.

An Antituberculous Dispensary.—A dispensary for indigent tuberculous patients has recently been opened in Milan, modeled upon one at Lille, which has accomplished much for the relief of these unfortunates. It is intended not only to furnish gratuitous medical treatment and advice, but to provide sputum-cups and antiseptics, regulate the home hygiene, furnish nourishing food when necessary, and give financial aid during the period of incapacity for work. A further extension of the plan for assistance is hoped for in the future establishment of an agricultural colony where work can be done by patients in the open air till they are able to resume their regular vocations.

The Gallia County Medical Society.—The regular monthly meeting of the Gallia County Medical Society was held in Gallipolis, Ohio, September 2, 1902. Dr.

C. G. Parker, President, read his inaugural address. Dr. T. L. Chadbourne, Resident Pathologist of the Ohio Hospital for Epileptics, presented a specimen from a case of diaphragmatic hernia in which the patient, an epileptic, died unexpectedly after a few hours' suffering from abdominal pain and distension following the ingestion of a large amount of unripe fruit. The stomach, transverse and portion of the ascending colon, all greatly distended, were found in the left thoracic cavity, protruding through a hernial ring in the diaphragm. Death was ascribed to the pressure of the distended intestinal viscera upon the heart and lungs.

Gift to the Royal Hospital Fund.—For years King Edward has taken the deepest interest in hospital work, and Queen Alexandra has taken equal interest in nursing. The London hospitals have greatly needed assistance, and the King, as Prince of Wales, established a fund in his name to aid them financially. It is now called King Edward's Hospital Fund, and has just received a gift of property estimated to be worth at least $2,500,000. The donors are Lords Strathcona and Mount Stephen, Canadian millionaires, who some years ago received peerages for their great services to the empire. The Spectator hopes that some English millionaires will imitate their colonial rivals, "who seem to have caught generosity by a sort of geographical contagion from the American men of wealth."

Poor Quarantine in the Philippines.—In a report made by Surgeon H. A. Stansfield, the medical officer in charge at Cebu, Philippine Islands, to Chief Quarantine Officer Perry on the subject of the cholera epidemic, it is stated that cholera was introduced into Cebu by a man who insisted on bringing the body of a cholera victim from Leyte, and burying it in Cebu. The President of Tobogan refused to let the boat carrying the dead body land, but the authorities at Catmon received it, and thereupon the epidemic in Cebu began. "Absolutely no quarantine," reports Surgeon Stansfield, "is imposed on the land side of town, and I look for a general infection of this island. Moreover, the people desiring to leave here are allowed to do so. The work being done here by the local officers is extremely bad. A cholera hospital has been established, but agitation is going on here to have cases treated in the houses. There is no quarantine camp here for suspects."

French Infant Mortality.—M. Gaston Leroux publishes in the Matin an article on the infant mortality caused by bad and adulterated milk. He quotes statistics of a most painful nature, which would seem to demonstrate beyond doubt that an enormous percentage of the children who die annually in France are literally poisoned by bad milk. This article is illustrated by a map of France, on which the greater or less infant mortality from that cause is indicated by small or large black spots. A glance at it shows that France may be divided into two regions, one to the north of the Loire, where more than half the children who die succumb to gastritis, the other to the south of the Loire, where not more than one-third die from that disease. Explaining the phenomenon of the high rate of infant mortality from gastritis to the north of the Loire compared with that in the south of France, M. Gaston Leroux says it is due to adulteration in the north, where the making of butter is a great industry; whereas very little butter is made in the south. He considers that it is now completely established that to feed children even on unadulterated milk which has been skimmed of all the cream is a dangerous and guilty practice.

Americans Living Longer.—The Census Bureau has issued a statement showing the increasing age of the population from decade to decade. The statement gives the results of computing the median instead of the average age. The median is such an age that half the population is under it and half is over it. The median age of the total population in 1900 was 22.8, as compared with 21.9 in 1890. The median age of the white population in the last census year was 23.4, and that of the colored population, including negroes, Indians and Mongolians, was 19.7, while in 1890 that of the white population was 22.4 and that of the colored population 18.3. The report shows there was an increase in the median age of the white population during each decade from 1810 to 1900 amounting in the 90 years to 7.4 years. The statement adds: "Many complex influences have cooperated in producing as a resultant this steady change in the age composition of the population. Three may be mentioned—the rapid progress of medical and sanitary science, which has tended to increase the average length of life; the decrease in the relative number of children born, which has made the earlier age periods less preponderant numerically in the total population, and the influx, especially since 1840, of great numbers of adult immigrants, increasing the number in the older age periods."

Still Swindling Physicians.—In our issue of Saturday, November 23, 1901, we stated that Pinkerton's National Detective Agency, through its New York office, had advised us of the operations of a swindler and forger who was forging the names of physicians in different cities and towns as endorsements to bogus checks passed by him upon banks in which the physicians whose names he forged had accounts. The Pinkertons now advise us that this swindler is still at work, he having recently obtained $118 from a bank at Lowell, Mass., on a forged endorsement of a physician of that city. In Lowell the swindler used the name of M. W. Harney. He pretended to the physician whose signature he obtained that he represented the National Publishers' Association, 110 Fifth Avenue, New York, and solicited the physician's membership to obtain medical works at 25 per cent. discount on all books and periodicals purchased through the association. At first he asked for a membership fee of $2, and when the physician refused to pay this it was waived, and in this way the swindler obtained the signature of the physician and the name of his bank. In the past, "Harney" has used such names as C. J. Merrill, Chas. J. Parsons, John T. Corson, H. A. Mann, D. A. Mason, and more recently, in Connecticut, Henry A. Marling. The swindler is rather a dapper-looking young fellow, thirty years of age, five feet eight inches tall; weight about 140 pounds; slender build; light complexion and hair; blue eyes; rather large nose; usually clean-shaven. The Pinkertons seek the cooperation of physicians in his apprehension, and they suggest that if he calls upon any of our readers they show no suspicion, but furnish him with their signatures and bank references, then immediately warn the banks where they have their accounts. The local police authorities should at the same time be advised. If the Pinkertons, who are interested for the American Bankers' Association, are communicated with they will give any information immediate attention.

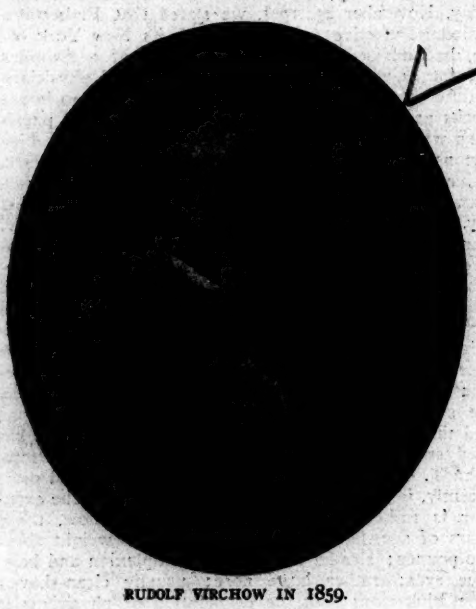
Obituary.—Dr. William O. Xander died in Philadelphia September 7 in consequence of a fracture of the skull by a fall from his carriage. He was graduated from the University of Pennsylvania in 1895. Dr. Edward B. Van Dyck of Philadelphia, sixty-seven years of age, died suddenly August 31. He was graduated from the University of Pennsylvania in 1856. Dr. Claudius Buchanan Webster, who was the oldest living alumnus of Dartmouth College, died at Concord, N. H., September 7. He was born in Hampton, N. H., December 10, 1815, practised medicine in early life, then for 18 years was principal of the Norwich (Conn.) Female Seminary. In 1862 he became an assistant sur-

geon in the United States Army, serving until the close of the war. He was in 1870 appointed United States consul to Sheffield, England, by President Grant, and filled the position until 1886. His father and three brothers, besides himself were graduates of Dartmouth College. One of his brothers was Major-Gen. Joseph D. Webster, chief of staff to Gen. Grant.

OBITUARY.

RUDOLF VIRCHOW.

ON Friday afternoon, September 5, there passed away the man to whom modern medicine is more indebted than to any other for a century, and who must ever be accorded a place in the annals of science beside the great discoverers to whom the world owes the revelation of new truths, valuable not only for the information they contained, but still more for their suggestive import. Rudolf Virchow is undoubtedly one of those who were not born to die. Long after the crude theories



RUDOLF VIRCHOW IN 1859.

that now find a place in medicine are forgotten Virchow's name will still live because the observations he made are immortally based in the truth of nature itself.

Virchow's career was reviewed very recently on the occasion of the celebration of his eightieth birthday, but his work represents so much that is of importance to present-day medicine, the example of his success forms so lasting a monument of what can be accomplished under not especially favorable circumstances, and his years of patient labor are so encouraging a model for the medical investigator, that the repetition of the principal features of his long life cannot but prove an inspiration to the students and workers now called upon to mourn his loss.

Virchow was the son of a small shopkeeper who eked out his commercial gains by farming in the neighborhood of the little town of Schivelbein in one of the poorest provinces of the German empire, Pomerania. Until the age of thirteen years young Virchow received his education at the village school. He was then for four years at the gymnasium of Köslin. At the age of seventeen he passed the "abiturient" examination, and as his parents' circumstances had improved somewhat he went to Berlin to study medicine. Berlin was not at that time the important city it has now become, and its university—not to be mentioned with Vienna or Paris—was not to be famous until Virchow himself as a teacher and discoverer should secure for it a world-wide reputation. The young Pomeranian was sent to Berlin because it was one of the universities nearest to his native town, and very probably because living was cheaper than in the larger cities.

It was probably fortunate, however, that Virchow was not brought too closely in contact with the Vienna school, whose work his discoveries were destined to supersede, for the preponderating influence of Rokitansky's name might well have diverted the originality of his untrammeled genius. Under the fostering care of Johannes Müller, who was not a great teacher in the ordinary sense of the term, for he failed to keep up the interest of his class, but whose magnetic personality drew to him in a wonderful way such men as Henle, Schwann and Virchow and inspired them with the ambition of original work, Virchow's powers were developed along just the lines which his genius sought. After his graduation he became the prosector in anatomy at the university. Among the men who were young members of the Berlin medical faculty at that time and had shared with him the privilege of Müller's special friendship were, besides Henle and Schwann, Brücke the physiologist, Helmholtz the physicist, Du Bois Raymond, Reichert, Claparède, Lieberkühn, Troschel, Remak and Lachmann. All of them were destined to be remembered for great discoveries in medicine; yet, though many of them had better opportunities, none was to do as great work as Virchow.

While still connected with the Berlin faculty Virchow was sent as the medical member of a commission to investigate the famine among the hand-weavers in Silesia, who had been ruined by the gradual loss of customers incident to machine-weaving. What he saw in Silesia made him a socialistic sympathizer with the poorer classes during the remainder of his life. He might often have obtained special preferment and titles from the court had he cared to be a complacent courtier and let politics alone or to accept views more in accordance with courtly liking, but he remained a consistent political adherent of the Social Democratic party until the close of his career.

In the early days of his teaching at Berlin he established the well-known Archives of Pathological Anatomy, Physiology and Clinical Medicine, which still exists and has come to be known all over the world as Virchow's Archives. Some of the early numbers consisted mainly of contributions by himself, but none of them ever contained material unworthy of his future reputation. In fact, many of the early articles manifestly contain the germs of discoveries he was yet to make. Some of his most notable early work was that on the white corpuscles of the blood and their increase in leucemia and that on certain of the intestinal parasites.

His political affiliations made him persona non grata in Berlin. He got into trouble during the revolution of '48 when youthful minds all over Germany were seething, and America was benefiting by the enforced emigration of such men as Carl Schurz, the late General Sigel and our own Dr. Jacobi. Virchow's resignation as a teacher at Berlin was requested, and he was glad under the circumstances to accept the chair of pathology at the University of Würzburg in Bavaria. Here in the next seven years, between the ages of twenty-eight and thirty-five, he accomplished the greatest work

of his life. His discoveries drew all eyes to the hitherto little known university, and in 1856 he was invited to return to Berlin as the full professor of pathological anatomy.

The first edition of his Cellular Pathology was published while he was at Würzburg, and proved to be the broad foundation of modern pathological progress. Before this time it had been considered that organs and tissues suffered as structures. Virchow showed that the changes produced by disease could be traced to the cells of the various organs and tissues. While an organ might be very seriously degenerated, not all of its cells were necessarily affected, and certain kinds of component cells might be spared entirely. Such terms as parenchymatous and interstitial had to be invented to represent the selective actions of inflammatory processes.

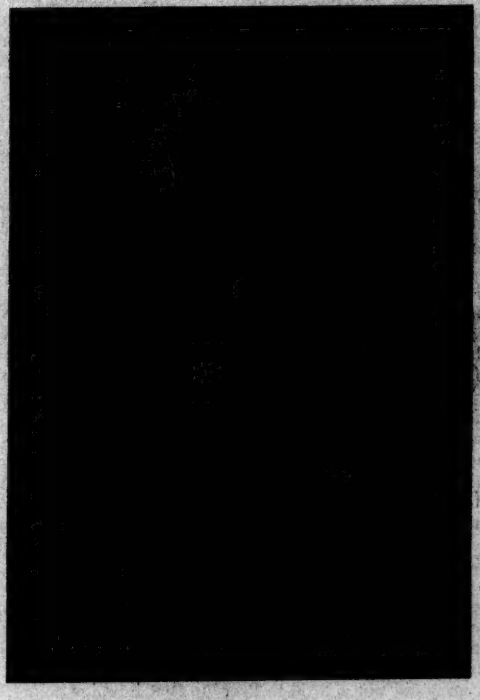
More than anything else at this time, however, Prof. Virchow's work on tumors deserves recognition. He pointed out more clearly than it had ever been done before the nature of various tumors and the distinction between those that remained benignant and those that were from the beginning malignant, or became so in the course of their development. While never a practitioner of medicine himself, Virchow's work never departed very far from the domain of clinical medicine. His Archives were noted as publishing some of the most important clinical articles in the early days, and Virchow himself accepted the editorship of a text-book of special pathology and therapy—what we should call a system of practical medicine now—that proved a popular reference work in German medical schools during many years.

The most important feature of Virchow's work in pathology in its relation to practical medicine was that it proved a counter-current to the nihilistic tendencies in therapeutics of the Vienna school of pathology. The demonstration by Rokitansky and his students of the extensive disease in various organs suggested the hopelessness of all therapeutic effort. The observations made by Virchow, however, that all cells did not suffer equally, that sometimes the more important parenchymatous cells entirely escaped, and that there were possibilities of cell multiplication, again gave heart to the therapeutists.

After Virchow's return to Berlin his interests widened so as to include nearly everything of importance concerning man. Of himself as he approached middle life he might well have said, in the words of the old Roman poet, *Homo sum; humani nihil a me alienum puto*—I am a man; nothing that is human do I count indifferent to myself. He wrote on manifold subjects and edited various journals and collections of essays. The reform of medicine, public hygiene, military sanitation, epidemics, mortality and morbidity statistics, school hygiene, the construction and management of hospitals, criminal law, forensic medicine and municipal sanitation were the special subjects of his thoughts; but he turned from these wide medical interests at times to pursue themes of ethnology, in which he was an acknowledged authority; of archeology, in which he was an original discoverer and brilliant thinker; in anthropology, of which he was one of the founders, and in various departments of sociology.

In spite of all this intellectual work, he was equal to the pursuit of the most time-consuming laboratory investigations, wherein he obtained his results not by ingenious generalizations but by patient observation, confirmed over and over again before the results were given definitely to the world. Virchow has never had to take anything back with an apology for the hastiness of his conclusions. He has always been an eminently conservative force in German medicine, resisting hasty generalizations. He was an anchor that kept the ship of medical doctrine from drifting with the gusty fads of the moment.

Virchow never ceased to be practical in the midst of all his work in the "ologies." When Germany went to war with Austria he organized the first military medical trains, and thus did much to rob war of some of its horrors. When in 1870 Germany and France were plunged into the unfortunate conflict that might so easily have been averted Virchow gave himself up entirely to the arrangement, equipment and drilling of the hospital trains that saw active service, and took sanitary charge of the immense military hospital situated just outside of Berlin. For his services he won the admiration and love of all the citizens of the capital, and his name became popularly known throughout the empire. After the war was over Virchow was placed



RUDOLF VIRCHOW.

in charge of the sanitary bureau of the growing city of Berlin. An immense and extremely difficult problem, hitherto unsolved, was before him. Berlin is situated on a plain. Two rivers, the Havel and the Spree, flow through it, but these carry very little water and would be considered as creeks in America. They are totally inadequate to carry off the sewage of so large a city, which must consequently be disposed of otherwise. Under Prof. Virchow's care the sewage farms of Berlin received such extension that in spite of the fact that the city has increased in population from less than 500,000 to more than 2,000,000 in less than 30 years, the sewage from this population has been successfully disposed of upon farms which produce enough revenue to meet the cost of its collection.

Of this and the creation of the admirable water-supply system of Berlin Prof. Virchow was very proud. The records of the health of all the men employed on the sewage farms, many thousands in number, were

brought to him for daily inspection. The occurrence of a few suspiciously similar cases was the signal for immediate investigation of the sanitary conditions where the cases occurred. Very few epidemics were noted. The mortality and morbidity from typhoid fever and other intestinal diseases among the men working in the sewer material was actually less for many years than among the rest of the city's population, though they were of course much more exposed. Their immunity was due to the proper enforcement of sanitary precautions, and this was Virchow's chiefest care. When nearly eighty he once confided to a correspondent of the MEDICAL NEWS that he feared that after his death there would be no one to replace him in carrying forward this work.

With all this wide range of intellectual activity, what wonder that it was a popular saying in Berlin that at Virchow's death Germany would lose not one man, but four—the physician-scientist, the politician-legislator, the director of sanitation and the anthropologist enthusiast who constantly kept up the interest in Berlin's magnificent museums. His work in archeology also deserves special mention. He went down to Hissarlik in 1879 and gave Schliemann the benefit of his experience as an anthropologist and of his knowledge of skull characteristics to aid the excavations at Troy. While in Asia Minor his interest in the natives prompted him to do some of the little regular medical practice of his life. As a consequence the natives came to reverence him almost as one from another sphere. He especially realized the importance of good water for the workmen, and knowing how easily contamination might take place, he always had the water for his own use and that of his companions brought from a distance. The natives got the idea that the spring from which water was brought at so much trouble for this great medical man from Europe must have some special medicinal virtue. A sort of tradition to this effect grew around it and for many years afterwards its waters were vaunted as a wondrous panacea for most physical ills. There is even an added bit of picturesque historical tradition to the effect that sick people were brought from a distance to its neighborhood, and that as a consequence it lost the one virtue of freedom from contamination, on account of which Virchow had recommended it during his successive visits in the region.

Virchow's description of the bones found in the graves of Koban is considered a valuable contribution to archeological anthropology. His interest secured many important gifts from the East for the Berlin museums, and his constant care for them in the midst of so many duties did not a little to keep up that intelligent interest in them which brought legislators to the realization of their educative value and awakened private generosity to a sense of its duty towards them for the generations to come.

As a legislator Virchow seemed to consider his position one of trust, in which there was placed under his care every interest of education in the country. Legislation adversely affecting university privileges met with his unfaltering opposition, while bills intended to benefit universities and widen their influence were sure of his devoted support.

Virchow was elected to the legislature of Prussia in 1862 and served continuously in it until his death. His special interest apart from educational matters was in the state finances. Prussia represents in the German empire very nearly what an important State of the Union like New York represents in our government. Virchow had a large field for his political activities, and he used his opportunities to advantage. The present system of Prussian finance, in certain ways regarded as a model, is said to be due mainly to his suggestions.

As the result of his successful legislative activity in the narrower sphere of state politics he was elected in 1880 to the German Reichstag or Imperial Parliament. He held his position as a member of this body for some 14 years, making his influence felt from the very beginning. He was not, however, a man to adhere to a party program unless he believed it to aim at what was at once best and possible.

During the earlier years of Virchow's career Bismarck was the dominant personality in German and also in Prussian politics. A clash of views between two such men was inevitable. Virchow refused all overtures looking to a compromise by which his influence against the Bismarckian policy might be lessened. He might easily have obtained recognition early in his career had he been ready to make even slight sacrifices of his opinions, but he was inflexible. When Bismarck's famous May Laws limited the liberty of education in Germany and threatened freedom of worship, Virchow was the most determined leader of the opposition to him in Prussia. He invented the word "Kulturkampf" (culture-struggle) to describe the opposition to Bismarck's efforts. The word obtained immediate acceptance and recognition. It proved a powerful weapon to prevent the accomplishment of Bismarck's autocratic designs by stamping opposition to them with the implication at least of a fight for true progress.

The breach thus made between Virchow and the great German chancellor continued to widen. From the time that Virchow became a member of the Reichstag he seems to have been constantly a thorn in Bismarck's side. The controversies between the two leaders respectively of autocracy and liberal democracy attracted the attention of the German world and have been given no little space by the different biographers of "the man of blood and iron" who ill brooked any opposition to his plans. At one time the issues between them became so bitter that Bismarck is said to have challenged Virchow to a duel. No absurder situation could well be imagined even for comic opera. While Virchow was a man of very small size, scarcely more than five feet tall and slight in frame, the German chancellor was almost a giant in build. Virchow was only a medical scientist whose genius had given him a position of influence in the legislature, while Bismarck was a prince of the empire, a hereditary nobleman with all the power of the empire behind him. Fortunately the intercession of friends prevented the contest from coming to the actual issue of arms. As the result of Bismarck's resentment Virchow was deposed from the position of Rector of the University of Berlin, to which his colleagues of the faculty had elected him. A few years later, however, this insult was amply compensated by his triumphant reelection to the position which in the eyes of the world Virchow more honored than was honored in accepting.

In the midst of all his interest in Germany, in German medicine and German politics, Virchow knew how to recognize the achievements of those of other nationalities, and was known as one of the most genial of men on social occasions in foreign lands. When invited to England he taught the English to appreciate the merits of the English medical investigator Glisson, who first described the capsule of the liver and many of its anatomical peculiarities. When invited to open the International Congress of Medicine at Rome, in 1894, he recalled to the Italians what the world owed to Morgagni, and did not hesitate to stamp him as the father of modern pathology, a distinction that many of his hearers thought should be reserved for a nineteenth century scientist in the person of Virchow himself. At the International Medical Congress of 1900 in

Paris Virchow was the guest of honor, and his cordial ways did more than anything else to smooth over any feeling there might be between French and German rivals and colleagues.

Virchow tasted many of the sweets of proper appreciation of his work. His seventieth birthday was made the occasion for the most cordial felicitations from all over the world. His eightieth birthday, celebrated only last October, was made an occasion of universal congratulation such as it has been given to few men to enjoy.

Hundreds of medical admirers sat down to banquets in his honor thousands of miles from his home and telegrams of good wishes poured in on him from all over the world. At the New York dinner the tributes to him came from the most distinguished members of the medical profession in America who could not say too much in his honor. The profession of Chicago and the West joined in a similar celebration.

Almost more than Virchow's great discoveries in medicine his life and the things it stood for remain for all time as a precious heritage for medical men. His was no narrow mind bent only on medical studies and sure that any mental declination from the straight path of medicine into other sympathetic intellectual interests must end disastrously. In spite, however, of his varied pursuits, no one took more interest than he in the professional status of the practising physician, and no one was more faithful than he in attendance on the meetings of societies that would further the favorable conditions of the practitioner's life. It was a constant source of surprise to medical visitors in Berlin to find Virchow always present and presiding at the meetings of the Berlin Medical Society, of which he was for many years the efficient president. How he found time for it is a mystery. When we consider how many lesser men find excuses early in their careers for the neglect of such duties, Virchow's position in the matter becomes all the more admirable. It may be said, of course, that the meetings of the Berlin Medical Society are apt to be of greater scientific interest than those of other cities, but if so, it is largely because of Virchow's earnest part in them.

His life might well be studied as a model by the physician who seriously desires to fulfil his obligations to himself—to do something more than merely make money. To money Virchow never seemed to give a second thought except inasmuch as it enabled him to complete his collections. The desires of his heart were fulfilled when the German government set about the erection of the Pathological Institute and Museum in Berlin and gave him the opportunity to oversee its construction and arrangement. It is a model for the world. When the new magnificent hospital in Berlin —to be named after him—is finished, he will have a worthy monument in the city which owes him so much. But Virchow's real and living monument is in the hearts of the men he trained to do great original work, and in the medical advances he originated, which have done so much and are destined to accomplish much more for the relief of human suffering and the prolongation of human life. He himself enjoyed length of days in healthy activity far beyond the lot of most men. In that his life was an illustration of the lesson that it is not work that kills, and that if a man can only rise above the petty anxieties and wearing worries of life he need not fear its shortening by application to manifold studies. Virchow's was the fullest, roundest life of our generation, and it is an index of the broadening of our culture that though it was cast in humble lines it was fully appreciated, not only by those closely in touch with it, but by all the world besides.

CORRESPONDENCE.

TRANSACTIONS OF FOREIGN SOCIETIES.

German.

TRIBUTE TO KUSSMAUL—MERCURIAL DERMATITIS—SERUM TREATMENT OF TYPHOID FEVER—AGGLUTINATION EXPERIMENTS IN TUBERCULOSIS—EXTRAGENITAL CHANCRE.

FROM the numerous interesting matters which the scientists brought up before the various German societies during recent meetings the following have been selected as of particular significance and interest for the readers of the MEDICAL NEWS.

Naunyn, at the Unterelsässischer Aerteverein, on June 21, 1902, read a tribute to Kussmaul, in which he dwelt upon the general influence and the great accomplishments of the famous clinician of Strassburg, and especially upon the marked impress he left upon his own immediate community. Those who were in contact with the personality of Kussmaul will easily understand what this implies. It appears that the aim of this famous man was to be in body and soul a physician in the highest sense, instead of striving for the individual leadership of the medical world in itself. His numerous contributions and works upon the subjects of gynecology, neurology, psychiatry and internal medicine are proof of this statement. Above all other considerations, however, it was through his capacity in the amphitheater, at the bedside and in the medical society that Kussmaul found himself in the first rank of eminent physicians. It seems that in all fields of medical activity he was almost equally successful. One need only refer to his articles on thoracentesis, on diabetic coma, on the treatment of gastrecstasis with the stomach-pump, and other numerous contributions which Fleiner has so carefully collected. Another particular in which Kussmaul was master was the ability to observe the sick and to analyze and describe the symptom complexes. Without a talent for this the clinician lacks the means of proper diagnosis. His great precision in drawing a clinical picture is one of the remarkable characteristics of his contributions to literature. He was a noted clinician and a very successful practitioner of medicine.

Hoffmann, at the Gesellschaft der Charité-Aerzte in Berlin, July 10, 1902, presented three cases suffering from mercurial dermatitis. The first was a woman who had been treated with mercury by inunction for syphilis. She broke out in an eczema-like dermatitis distributed over the whole body and characterized by an active shedding of the horny layer of the skin, particularly in the hands and feet, and by swelling of the mucous membrane of the mouth and of the lingual papillæ. His second patient was a thirteen-year-old girl with dermatitis exfoliativa who had been under treatment by inunctions with gray ointment. Dermatitis began with an active shedding of the skin and falling out of hair of the head and eyebrows. She also had rapidity of the heart's action and mercury was found in the urine. He likewise described a third case in which a similar outbreak on the skin had followed three injections of 0.01 gram of corrosive sublimate. The patient also had a scarlatina-like eruption on the skin and a high fever. In this instance the patient was afflicted with psoriasis, and had a few days previously been visited with a similar outbreak. Sometimes after a long period, and sometimes after a short one, following both internal and external use of this medicine, Hoffmann has seen these signs. For the most part they are accompanied by a shedding of the skin. As a rule, there is no albumin in the urine. Histological changes, so far as they are shown by pieces of the skin cut from the affected areas, are the following: As in all dermatitis, they are various. There is a large number of eosinophilic cells, not only in the en-

larged blood vessels but also in the rete and horny layer. In the blood there is considerable increase in the number of white cells, many of which are eosinophiles.

H. Du Mesnil, at the Altonaer Aerztliche Verein, March 26, 1902, dealt with the subject of serum treatment of typhoid fever in an able paper in which he sought to establish the following points. This method of treating typhoid fever should be used only in cases where the diagnosis is absolute. For the establishment of the diagnosis he feels that all means should be used. In his series of patients he employed the Widal reaction. It gave a positive result in dilution of 1 to 80 or 1 to 100. A very simple method of obtaining the serum is to apply a Spanish-fly blister over the skin. After about 24 hours a bulla is present from which the serum may easily be taken. A still more certain means of diagnosis which he employed is that of cultivating the bacillus. The blood for this purpose he takes from the vein of the arm by a puncture of a sterile needle and mixes it in the proportions of from 1 to 1 to 1 to 5 with agar. This mixture is then put into the heating oven and kept there for 24 hours. From Pfeiffer's researches one is convinced that serum is serviceable. If into the abdominal cavity of a guinea-pig a fatal dose of typhoid bacilli is passed from a syringe, or the quantity of bacilli necessary to establish with certainty an active infection, in either case death or infection will quickly be hindered or even checked altogether. After the first injection another injection of serum is given. Often the animal will remain perfectly healthy. From this foundation Tavel has established the permanence of immunization to be from one to two years in horses, and has obtained a very active serum which will produce the Widal reaction in 1 to 10,000 dilution. With such a serum, which had been given him by the National Institute of Switzerland for the Production of Serum, this author made his experiments. At the present time he has had 5 cases of typhoid fever in the human being, and his results are as follows: After 20 c.c of serum a gradual decline of the fever took place ranging between 105.5° F. on the 21st day to 101.5° on the 25th day. In one or two of his cases he had to cease the injection treatment for various reasons, but found that his first applications of the remedy were not without effect even in these persons. The injections caused no local reaction and seemed to raise no disturbance in the general condition. After the administration of doses increasing from 10 to 40 c.c. he noticed a slight decrease in the temperature even in the first week of the disease. He also has seen in a few cases after an injection a rise in temperature, which was, however, successfully combated by another injection.

Nebelthau, at the Verein der Aertze in Halle, read a paper concerning the agglutination test for tuberculosis. He showed this phenomenon to the society by means of an emulsion of the bacilli, supplied to him by Professor von Behring, which he employed in the method recently described by Romberg. One particular feature which he desired to emphasize was that in a certain number of cases of consumption the reaction failed totally. He therefore feels that serum diagnosis is not yet sufficiently reliable in the case of tuberculosis to be placed in general use. At the present time there are so many facts about it to be investigated that it is impossible to state what its value in the future will be. In these opinions he concurs with Romberg, Koch, Fraenkel, Neisser, Dieudonné, Beck, Rabinowitsch and others.

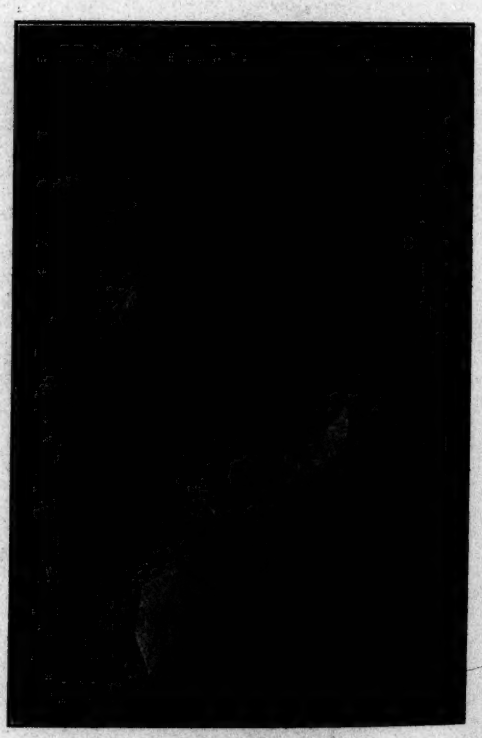
Dryer, at the Allgemeiner Aerztlicher Verein zu Köln, March 24, 1902, read a paper on extragenital chancre which was suggested by a patient of his who presented the lesion upon the cheek. On the right cheek, close to the nose and in the middle of the interval between the eye and the upper lip, the man presented the scar of an ulcerating chancre which had a characteristic induration about it. There was also a narrow thickening about this part of the right cheek that extended into the nose. This presented an erosion about the size of a bean, on the same side of the septum. Later the patient presented skin eruption and all the other symptoms of syphilis in the secondary stage, so that the diagnosis was established.

Chancre of the cheek is exceedingly rare. In this region Duncan Bulkley found but 12, after collecting the records of a very large number of them throughout Germany, Holland and Switzerland. Fournier has seen only 40 cases, while he observed 328 on the lip and 53 on the tongue. This may follow the unnatural means of sexual intercourse and such accidents as bites, razor-cuts, being spit upon and the like. Chancres of the face are more frequent in women than in men and most frequent of all in children. Fournier distinguishes two forms, the erosion chancre, and the chancre with enlargement to which this author's own case belongs. The length of time necessary for such chancre to heal varies from four to eight weeks.

SPECIAL ARTICLES.

THE NEW SURGEON-GENERAL OF THE ARMY.

General Robert M. O'Reilly succeeded General William H. Forwood as Surgeon-General of the United States Army on September 8, having been selected by



SURGEON-GENERAL ROBERT M. O'REILLY.

the President several weeks previously in anticipation of General Forwood's statutory retirement.

General O'Reilly was recently in charge of the Medical Corps of the Department of California. He has just

completed a tour of inspection of the various military posts between San Francisco and Washington, and is therefore possessed of a personal and practical knowledge of the condition of the most important stations of the West.

The career of General O'Reilly has been long and eventful. He has served his country in every medical capacity from that of acting cadet to Surgeon-General in command, and has been particularly distinguished in the service for the two qualities most essential to success—devotion to his profession and marked executive ability.

At the beginning of the Civil War he was a student in the Medical Department of the University of Pennsylvania, but having volunteered for active service, he was appointed an acting medical cadet, and served as such until the cessation of hostilities. He then returned to the university and resumed his interrupted medical studies. Graduated in 1866, he was appointed an assistant surgeon in the Army May 14, 1867. From that date, considering the slowness of promotion in those days, his advancement was rapid. He won his captaincy in 1870; was promoted to the rank of surgeon and major in 1886, and in 1900 to that of lieutenant-colonel in the department of the Surgeon-General.

For many years General O'Reilly was stationed at the national capital as surgeon in charge of the officers on duty in Washington, and of their families, endearing himself to them, not only by his professional skill, but also by his tact and sympathy. He was the physician to the White House during the two administrations of President Cleveland, and there are few men in medical practice, either in the service or in civil life, who have enjoyed the esteem and respect of so many prominent people.

It is, however, his marked executive ability and faithfulness to detail that will render him of signal service to the Government at this time. The standard of scientific original research has always been a high one in the Medical Corps of the Army, and General O'Reilly's genius for organization and his singular success in putting the right man into the right place will assure the furtherance of experiments now being pursued for extermination of the mosquito, as well as other sanitary investigations of the greatest importance alike to the soldier and to the profession at large.

These efforts of late have been most energetically carried on under the direction of General Forwood, who was a man in all ways adapted to the task, a close observer, a ripe scholar, possessing varied and practical knowledge, and one who by his writings alone would have left an honored name in any profession fortunate enough to have enlisted his interest.

General O'Reilly is still a young man, with his full detail of four years before him, and we wish him all success.

TOUR OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION.

BY GUY HINSDALE, M.D.,
OF PHILADELPHIA;
SECRETARY OF THE ASSOCIATION.

The annual meeting of the American Climatological Association was held at Los Angeles, Cal., June 9, 10 and 11, 1902, and the members in attendance made a most interesting and instructive trip through Kansas, Colorado, New Mexico, Arizona, California, and Utah. Some of the members returned via Oregon, Washington, Puget Sound and the Dominion of Canada. The arrangements provided for a private car leaving Chicago on May 27, by the Santa Fé route, via Kansas City, Lajunta and Las Vegas. As might have been expected from the presence of Climatologists and a direct representative of the Weather Bureau from Washington, the association encountered en route what was invariably termed "the most unusual weather." There were severe floods in western Kansas and eastern Colorado, which carried away several railroad bridges and enqualities of Kansas mud and to become familiar with abled us, during 40 hours' delay, to test the tenacious the habits of the prairie dogs and all the flora and fauna of the plains. Kansas did not make a favorable impression on the party either in regard to soil or rainfall.

As we entered Colorado Pike's Peak came into view, and the interesting ranches from Nepesta and Rocky Ford, famous for its cantaloups, to Lajunta. Passing southward through New Mexico, we breakfasted at Las Vegas, where the Santa Fé road has built a beautiful hotel in the Spanish style, well appointed and under the Harvey management. At Albuquerque the new Hotel Alvarado provides unusually good accommodations. The clear, dry air and blue sky, the power of the midday sun and the relative cool of the shade, the Indians and interesting Pueblo villages made a vivid impression on the travelers. The important health stations in southern New Mexico, including, Las Vegas, Las Vegas Hotsprings and Albuquerque, are, like those in southern Arizona and the interior of California, very comfortable for six months of the year, but from May to October, they are generally abandoned for more northern stations in the table-lands having 6,000 or 7,000 feet altitude.

The Grand Cañon of the Colorado was visited June 1. The river rushes through a channel 125 miles long and has cut its way 5,700 feet below the rim of the cañon. The Bright Angel Hotel is within a few hundred feet of the end of the railway track and is close to the edge of the precipice. Mounting horses and mules, we began the descent by a narrow and hazardous trail. Rounding "Cape Horn" and making other perilous passages, we were encouraged by our guides, and felt implicit confidence in the imperturbable beasts that hung their heads over the most awful chasms imaginable.

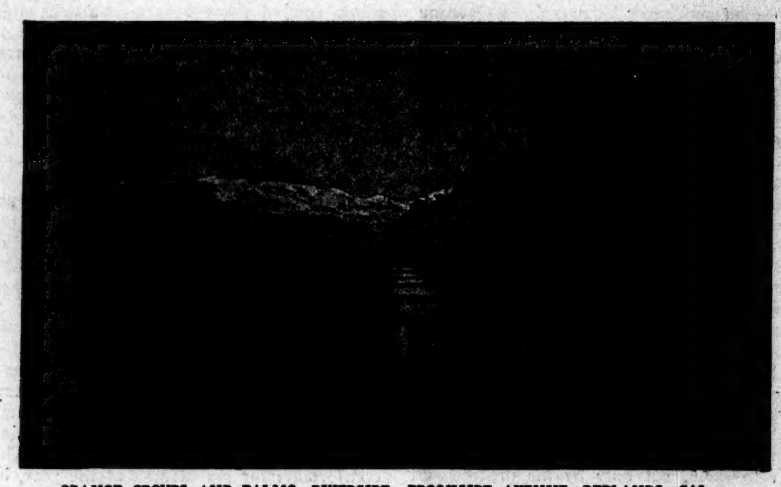
The river is 5,720 feet below the plateau's level, and it is 1,300 feet above tide at this point. It is to be remembered also that above 10,000 feet of Permian, Mesozoic and Tertiary formations originally held a place above the plateau as it now exists. There is no other place on the globe where such a marvelous illustration of the formation of the earth's crust may be found. The period of time during which the process of erosion has been slowly at work in the production of this stupendous chasm is entirely beyond our conception. The ascent of the trail would appear impossible; there are apparently impassable barriers in all directions, but the narrow path has been constructed with skill and in such a substantial manner that no accidents have hitherto occurred. As the ascent is made one realizes still more the grandeur of the cañon, and, having less anxiety for his safety, contemplates the scene with feelings which baffle expression.

The hotel is reached in about eight hours after starting, and near it there are places where one may get a glimpse of the river and watch the changing lights and shadows as evening comes on. The scene is one of marvelous beauty, weird and mysterious, and might well have held us for many days. It is gratifying to know that a new hotel, to cost upwards of $100,000, will be erected during the winter near the rim of the cañon. The elevation of nearly 7,000 feet and the delicious air at all seasons make the vicinity of the cañon a most desirable station, especially during the summer. The sandy soil supports a growth of pines and other ever-

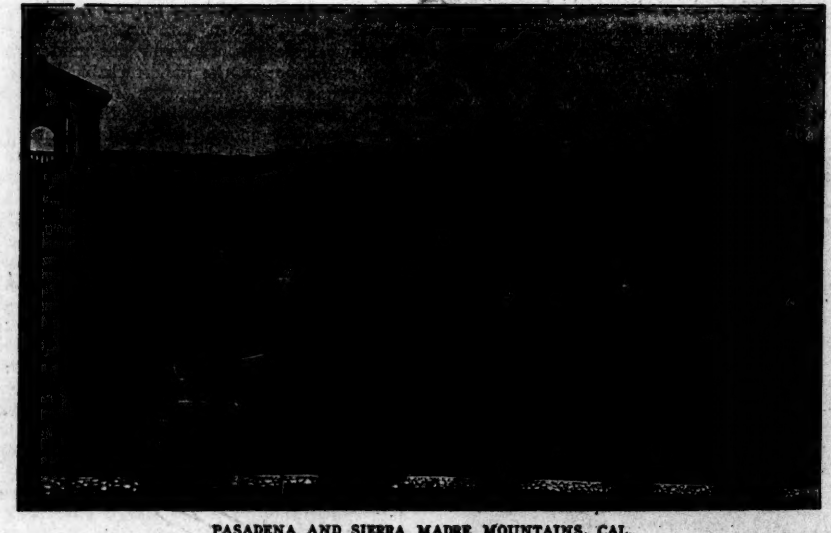
green trees; but all water has to be brought up by train from lower levels.

On reaching Ashfork, in Arizona, the association was welcomed to the Territory by Dr. Duffield, Dr. Foss and Dr. Plath, physicians representing the Medical Society of Arizona and the Board of Trade of Phœnix. During our visit of several hours at Prescott (altitude 5,000 feet)we were driven about the town and visited the excellent hospital conducted by the Sisters of Mercy. At Phœnix we were cordially received and handsomely entertained. The morning was devoted to driving through the city and its environs, visiting the Indian School and the capitol where we were received by the acting Governor of the Territory. The temperature at Phœnix on the day of our visit was 100° in the shade, but the heat was not exhausting, as the relative humidity was 5 per cent. After an enjoyable dinner at the Hotel Adams, tendered to the association by the physicians of Phœnix and by the Board of Trade, we listened to a description of the climate of Arizona by Mr. Wm. G. Burns, the Section Director of the U. S. Weather Bureau. The Hon. Webster Street acted as toast-master, and toasts were responded to by Drs. Bowditch, Phillips, Otis, Solly, Nammack, Cleemann, McGahan, Duffield and H. L. Taylor. After dinner the members visited the station of the Weather Bureau.

A few miles below Phœnix an opportunity was afforded to visit Tempe, a beautiful station on the Maricopa, Phœnix and Salt River Valley railroad. Dr. Jones, of Tempe, met us with conveyances and showed us the country round about. The rich soil, broad fields of alfalfa, and extensive agricultural interests made a lasting impression on the members of the party. On regaining the railroad our car was taken, through the courtesy of the Phœnix and Maricopa railroad, to Maricopa, where it was attached to the overland train of



ORANGE GROVES AND PALMS, RIVERSIDE. BROOKSIDE AVENUE, REDLANDS, CAL.



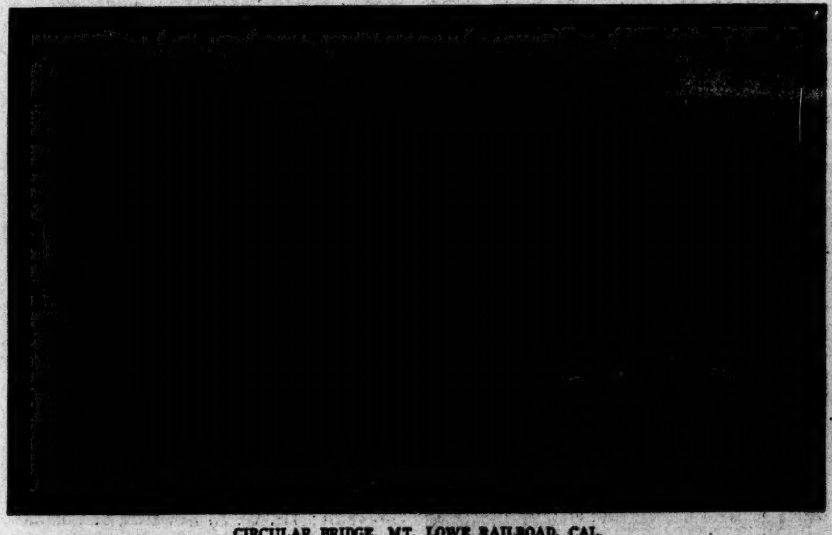
PASADENA AND SIERRA MADRE MOUNTAINS, CAL.

the Southern Pacific Company, to whom thanks are due for courtesies of transportation throughout California. The company sent as its representative Dr. George F. Reinhardt, of Berkeley, Cal., who met us at Lomalinda and accompanied the association throughout the State, facilitating our movements and in every way adding to the interest and usefulness of the trip.

At Lomalinda the association was welcomed by the Riverside County Medical Society, the Redlands Medical Society, and by the Board of Trade. We thoroughly enjoyed the quiet beauty of the surroundings. The orange-groves were still bearing fruit, and the beautiful gardens and quiet restfulness of the place were particularly grateful to all. We were taken to Redlands and driven through that beautiful city to Smiley Heights and Cañon Crest, where we saw the most luxuriant foliage and a paradise of flowers. Redlands is a comparatively new city, dating from 1887. It now has a population of about 6,500 and is one of the most beautiful places of residence on the Pacific Coast. Many of the handsome estates are owned by Eastern people, who visit Redlands during the winter and early spring. Smiley and England Heights are beautiful at all seasons and are kept in order by a small army of caretakers. Redlands has an almost level valley, south of the Mohave desert and between the San Bernardino, San Gorgonio and San Antonio mountain ranges. There are about 4,500 acres devoted to orange-groves, from which 2,443 carloads of fruit were shipped in 1901. The ranches are scientifically graded so as to employ irrigation, as the average rainfall is only 16.8 inches, ranging from 7.81 inches in 1898 to 25.7 inches in 1899. The groves are in fine order and are well fertilized to maintain their excellence.

A dinner was tendered to the association on the evening of June 4 by the Lomalinda Association, the Redlands Medical Society and the Board of Trade, to which a number of the physicians of Riverside, Redlands and Los Angeles were invited. The toast-master was the Rev. Dr. McIntyre, of Los Angeles, who welcomed the association to California and to its first taste of California hospitality. After referring to what the great railroads had done for California and showing that cities are now built where men find it most congenial to live, Dr. McIntyre paid a glowing tribute to the climate of California, picturing the scenery of the Yosemite and Mt. Shasta and declaring that southern California had the best "all-the-year-round" climate in the world. "You may assert," he said, "that all places have climate. No; I have known cities having no climate—only weather. Here the climate is tempered to bear a kindly demeanor towards man. You will find here something else besides. You will find a wonderful people. It seems to me that God has sifted 40 States to get the seeds to plant southern California with men." Responses were made by Dr. W. F. R. Phillips, a vice-president of the association, who gave an account of the journey from the East and spoke in appreciation of the welcome extended to the association. Other responses were made by Mr. Henry B. Ely of Redlands, Dr. McCoy of Los Angeles and Dr. S. E. Solly.

On the following day, June 5, we went to Riverside, accompanied by physicians of that city, and were driven in tally-hos, provided by the Chamber of Commerce, through Magnolia Avenue and through some of the beautiful estates. At Chemawa Park a delicious lunch-



CIRCULAR BRIDGE, MT. LOWE RAILROAD, CAL.

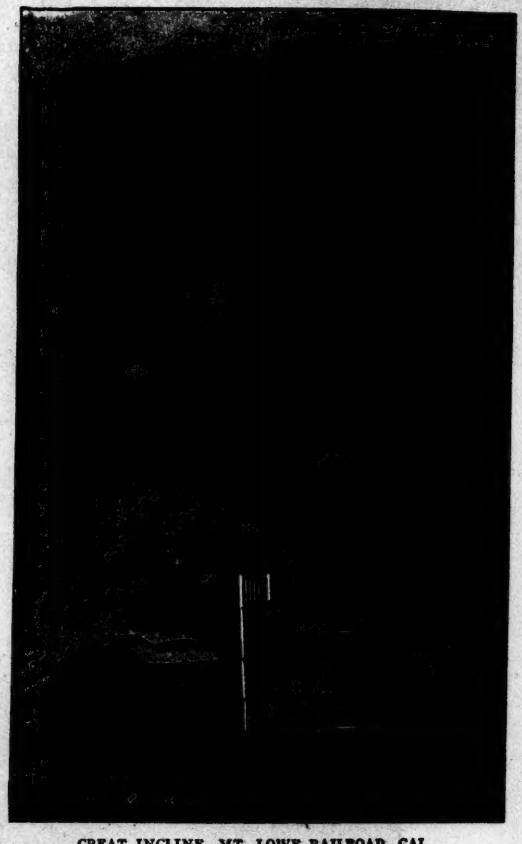
eon was served by the ladies of Riverside. Riverside possesses some of the oldest orange-groves in California, and the ranches have been brought to a very high state of cultivation. With ample irrigation enriching the soil, and with constant attention to the needs of the various fruit-trees, the owners of these orchards have obtained a handsome return. Five thousand carloads of oranges were shipped last year. Riverside dates from about 1870. The famous navel orange was first grown in the United States at Riverside about 10 years ago. Olives, lemons, the date-palm and other palms flourish. In this part of California, lying between the Sierra Madre, San Jacinto, San Gorgonio and other mountains, the valleys are nearly level. Where water is introduced they are easily irrigated, and the finely pulverized chocolate-colored volcanic soil and decomposed granites are wonderfully productive. Owing to the long dry season, dust becomes objectionable but on the principal avenues of all towns in southern California oil is now used to lay the dust and harden the road-bed. A large supply of oil in southern California makes this possible, and the streets are sprinkled with crude petroleum several times during the season. As the oil becomes well incorporated with the road-bed a firm and dustless road is the

result. The odor of the crude oil becomes less and less obnoxious. Some of the oil-fields of California extend under the sea, and at Santa Barbara wells are driven hundreds of feet from the shore, and through pipes the oil is collected.

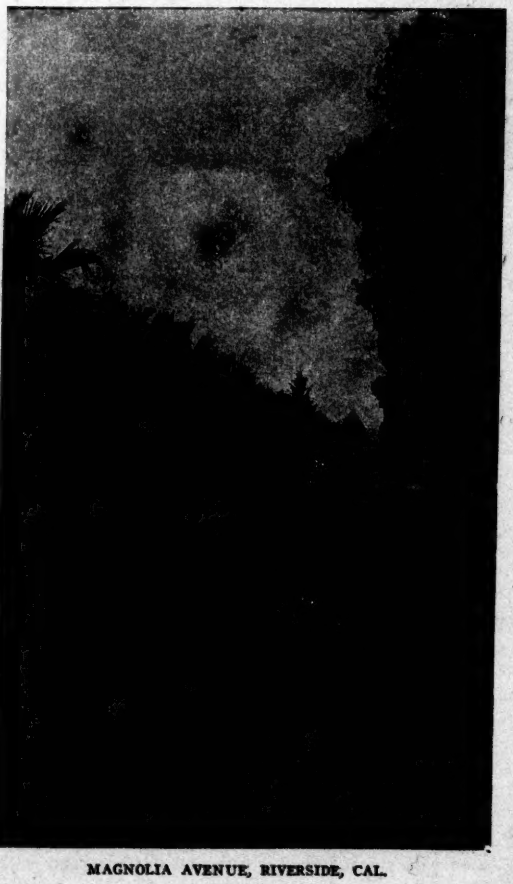
On leaving Riverside we went to Hemet en route for Idyllwild. Hemet is on the Santa Fé railway, 35 miles southeast of Colton. We were entertained at lunch by the Hemet Land Company and by them driven to Idyllwild, a health resort in the Strawberry valley, 20 miles distant, at an elevation of 5,250 feet. The last 10 miles was up a steep mountain road. The resort is primarily for the reception of tuberculous patients, and there were 50 under treatment at the time of our visit. The establishment consists of a central building, conducted like a hotel, with a large number of cottages and tents at convenient locations. There are electric and steam plants, good water-supply and 7,000 acres of land, including the Strawberry valley. The Strawberry Valley Lodge is half a mile from the sanatorium. It is under the same general management and equipment, but less expensive. We enjoyed the hospitality of Idyllwild for two nights and a day, and had the opportunity of exploring on horseback the surrounding heights.

We reached Los Angeles June 8, and during the succeeding three days held the scientific sessions. Twenty-two papers were presented, and are to be printed in the annual volume of Transactions. The feature of the second day was the presentation of five papers on California. Prof. Alexander McAdie, of the Weather Bureau, San Francisco, contributed a paper on the climate of California in general; Dr. C. A. Sanborn, of Redlands, on the climate of the Eastern Foothills; Dr. G. E. Abbott, of Pasadena, on the climatology of the Western Foothills; Dr. W. A. Edwards, of Colorado, on Littoral California. Dr. Walter Laidley read a paper on the climatology of the Mountains of California. The annual dinner was held at the Westminster Hotel, and 60 persons participated in it. While the dinner was being held the ladies accompanying members of the association were entertained by ladies of Los Angeles with enjoyable music. A fine musical programme added to the enjoyment of the annual dinner, and a handsome illustrated souvenir, entitled "Climate; What it Means," was presented to each guest by the Los Angeles Chamber of Commerce. On the following evening Dr. and Mrs. W. Jarvis Barlow gave a reception at their residence to the association, and invited the Los Angeles Medical Society to meet the members and accompanying ladies and guests. The courtesies of the California Club were extended to all the members and accompanying guests, and this attention was highly appreciated. Drs. LeMoyne Wills, George L. Cole, Bridge, Orme and others entertained members at luncheon, and took all the members of the association in tally-hos about the city of Los Angeles and its environs. We were shown the Medical Department of the University of Southern California, the Children's Hospital, the Sisters' Hospital, the Sanatorium for the Tuberculous Poor and the California and Pacific hospitals.

The association made an afternoon trip to Santa Mo-



GREAT INCLINE, MT. LOWE RAILROAD, CAL.



MAGNOLIA AVENUE, RIVERSIDE, CAL.

nica, by courtesy of the electric road, and several of the members took their first dip in the waters of the Pacific Ocean. The strong afternoon sea-breeze created a pretty heavy surf and the temperature of the water was not over 60° F. Santa Monica is a popular seashore resort 17 miles from Los Angeles. It has two very good hotels and numerous small cottages.

An afternoon was spent in a trip to Pasadena and Mt. Lowe. The association was welcomed at Pasadena by the Board of Trade, and driven over its beautiful avenues. The private residences in Pasadena are of a high grade, many of them of great architectural beauty and with attractive grounds. The palms, the pepper-trees, the rose-hedges and beautiful lawns make this city a most desirable place of residence; but here as elsewhere in southern California, many of the houses were deserted and will not be opened until January. Pasadena is not, however, unsuited for residence throughout the entire year. The temperature in summer may reach 90° F. or over, but the relative humidity at the same time is about 40 per cent. The humidity is greater, however, than at Redlands, San Bernardino and other interior stations. The nights are always cool and blankets are indispensable. In winter the temperature rarely falls to 26° F., and the days are warm and sunny. On New-Year's day the tournament of roses is one of Pasadena's beautiful sights. We visited the new hotel Raymond and made a call at the home of Dr. Norman Bridge, a vice-president of the association. By the courtesy of the Pasadena and Mt. Lowe electric railway a trip was made to the Alpine Tavern 1000 feet from the summit. The ascent is made partly by electric and cable power and affords a fine view of Pasadena, San Rafael Heights and the San Gabriel valley. The afternoon fog near the coast prevented a clear view of the ocean. It was a beautiful trip, and revealed one of the most remarkable pieces of engineering. The elevation reached was 5,000 feet.

On June 12, the association, having finished its sessions, left via the Santa Fé road for San Diego and Coronado. Here the visiting members were welcomed by Dr. William A. Edwards and Mr. E. S. Babcock, manager of Hotel Coronado and delightfully entertained. It had been the intention of the association to hold its meeting at Coronado, but unforeseen difficulties arose which made it necessary to have the sessions at Los Angeles and visit Coronado afterward. Coronado is unquestionably the best seashore resort on the Pacific Coast, and is equally enjoyable in winter and summer. The bathing, fishing, games of water polo and other diversions render a visit to Coronado particularly delightful. Returning to Los Angeles the association made a trip to Catalina Island, remaining over night at Avalon. The island is reached by a sail of 23 miles from San Pedro. Avalon is protected from high winds and surf and is an ideal place for sailing and fishing and for studies of the marine fauna and flora. The sea-lions are always interesting. Sea-bass weighing over 400 pounds are occasionally caught at Avalon, and tuna, jew-fish, barracuda and halibut are also found in these waters.

Again returning to Los Angeles, the association visited Santa Barbara. From San Buenaventura the train followed the shore and traversed a most interesting oil district. The innumerable derricks extended to the water's edge, and at one point piers were constructed beyond the breakers so that the remarkable sight was presented of oil-wells in operation at some distance from the shore from which oil may be loaded directly into tank-steamers. The oil is said to flow more freely during flood tide, and the oil-bearing sands extend several miles beyond the shore-line. The oil has supplanted coal for locomotives in southern California, and during the dry season is used for sprinkling the highways to prevent dust. The oil is dark and heavy and has not yet been successfully refined. Its use on the roads and avenues of the larger cities is not offensive, and it produces a good road-bed and a welcome change from the inevitable dust of the arid regions. Santa Barbara is one of the most attractive cities of California. In front of it lies the Pacific Ocean with a chain of islands in the distance. These break somewhat the force of storms, and the harbor is fairly safe. Back of the city are the Santa Inez range of mountains and the Sierra de San Rafael. By the courtesy of Dr. W. H. Flint we were driven for 18 miles along the mountain-side in and out of the cañons which reach upward from the foothills. We also visited the interesting Santa Barbara Mission, founded by the Franciscan fathers in 1786 and still in excellent preservation. The coastline at Santa Barbara runs almost east and west, and the protection afforded by the mountain ranges on the north gives to Santa Barbara a most advantageous position. It is a popular place for residence during the winter and spring, with numerous cottages and good hotels.

San Luis Obispo, the Sycamore Hot Sulphur Springs and Paso Robles were also visited, and on the evening of June 18 we arrived at Del Monte. The approach by way of Castroville and the vast ranches of the Salinas valley gives no suggestion of the beauties of Del Monte. This magnificent estate on which over $2,500,000 has been expended is one of the "show-places" of California. Although less than two miles from Monterey, it has no view of the bay, the hotel lying in a sheltered position well surrounded by trees and gardens. There are no end of walks, and a drive of 18 miles within the limits of the property is one of the most beautiful on the Pacific Coast. Monterey bay, the old Mission, the shores of the Pacific and the remarkable trees are among the features of this resort. Some of the party enjoyed a sail on Monterey bay. There is an atmosphere of restfulness and quiet beauty at Del Monte which makes it a desirable place for convalescents from acute disease. It is not specially suited to tuberculous cases. The party left Del Monte June 20 for Santa Cruz and visited the remarkable grove of big trees (Sequoia sempervirens). We proceeded to San Jose and made the ascent of Mt. Hamilton (elevation, 4,440 feet) by a long stage-ride. On the following day Palo Alto was visited. The Leland Stanford, Jr., University, although not in session, was inspected and the adjoining estates, including the late Senator Stanford's famous stock-farm were visited.

San Francisco was reached June 21, and the Palace Hotel was made headquarters. The visiting members of the association were received most hospitably by leading members of the profession in San Francisco and delightfully entertained at the Pacific-Union, University and Bohemian clubs. Visits were made to the U. S. Military Hospital at the Presidio, and the Sutro Baths, the Cliff House and "Chinatown." The Association for the Protection of Forests and Waters gave a luncheon to the members which was highly appreciated. We enjoyed a trip to the summit of Mt. Tamalpais on the north side of the bay, the skill of the engineers who built this remarkable road and the beauty of the prospect from the summit making a decided impression. The Pacific Ocean beyond the Golden Gate, was well seen, and San Francisco, Oakland and San Rafael were plainly visible. San Francisco has a climate of its own with very little change through every season of the year. snow and ice are never seen, and rarely is the temperature above 75° F. At the time of our visit overcoats

were usually required in the afternoon, especially when riding over the hills of the city. These would be impassable if ice should form. The climate is a good one for many nervous diseases, but is rather too hard for pulmonary or bronchial affections.

On leaving San Francisco the company was somewhat divided, the majority returning eastward via the Southern Pacific Company's Ogden Line. This afforded an opportunity to make a side-trip from Truckee to Lake Tahoe. This superb lake, on the dividing line between California and Nevada, has been formed in the crater of an extinct volcano. It is 25 miles long and has an elevation of 5,000 feet. It is of remarkable beauty and well repays one for a visit. Officers of the Lake Tahoe Railway and Steamer Service invited the association to visit the lake as guests of the company. The members also spent an enjoyable day in Salt Lake City, bathing in Great Salt Lake and visiting the well-known places of interest. Glenwood Springs, Colorado Springs and Denver were also visited, and many courtesies were shown by the members of the association residing in those place. Some of the members of the association, including the secretary, went north from San Francisco by the famous Shasta Route, passing close to that magnificent snow-covered mountain. We visited Portland, Tacoma and Seattle, going thence by steamer up Puget Sound to Vancouver in British Columbia.

The first station on the Canadian Pacific railway that attracted our attention from a climatic standpoint was Kamloops. This town of about 2,000 inhabitants is in a valley of the Thompson river, 250 miles east of Vancouver. Its altitude is 1,160 feet and the air is dry and invigorating. The annual rainfall is 10 inches. It is better situated than any other place in British Columbia for the treatment of pulmonary affections, since it affords proper climatic conditions, and through the Canadian Pacific Railway service, is easy of access and well supplied. There is no special provision for the care of tuberculous patients, but it is quite likely that an institution will be established there at no distant date. Kamloops is much drier than towns on the Pacific or stations in the Rocky Mountains, but there is more wind.

Leaving the main line of the Canadian Pacific Railway at Revelstoke, we visited the Arrow Lakes. These lakes extend from Arrowhead, 28 miles below Revelstoke to Robson, a distance of about 125 miles. They are expansions of the Columbia river, and have an elevation of 1,390 feet above sea-level. The upper and lower Arrow Lakes are connected by a narrow passage through which the waters have a strong current. The shores are bold, and mountains, many of them with snow-capped peaks, rise abruptly from the lake from 6,000 to 8,600 feet above the level of the sea. The waters of the lake are too cold for bathing, owing to the melting snow, but on the eastern shore of the Upper Arrow Lake there are two hot mineral springs. The Halcyon Springs have a temperature of 126° F. Its waters are calcic saline, sulphated, sulphureted, and are piped 300 yards to the hotel near the lake-shore. There are individual baths and two plunge-baths, and the water is shipped for use. The springs are reputed to be valuable in the treatment of rheumatism, which is a common complaint among miners who are constantly exposed to wet and cold. Access is by boat 10 miles from Arrowhead. There are also the St. Leon Springs, 14 miles from Arrowhead. The waters are hot at their source, and piped about a mile to the hotel, which is near the lakeside. The waters are heated for use and employed in the treatment of rheumatism. Both of these hotels are open during the entire year, but there is at present no medical attendant nearer than Revelstoke, 38 miles distant. There is a daily boat each way. The Arrow Lakes are rarely frozen in winter. Navigation is open throughout the year. They are little known by tourists, and only within the last 10 years have they been accessible by rail. There is very little evidence of civilization here. Mountain-goats and bears are occasionally seen. Grouse are somewhat plentiful, but ducks are scarce. The lakes abound in salmon and lake-trout. Brook and rainbow trout are also found. The lakes are comparatively free from storms, although showers and high winds are frequent in summer. They are well suited for canoeing and boating and for small launches and house-boats. The Kootenai Lake has an elevation of 1,800 feet and has the same general features as the Arrow Lakes. Lake Windemere is a good location for camps. The geologic formation is of gray and reddish granite with gneisses, mica-schists and argilites.

Returning to the main line of the railway, we went to Glacier Station and climbed the Great Glacier of the Selkirks. This splendid glacier is only one of many in this region and is probably the most accessible glacier on the continent. Swiss guides are available and necessary for expeditions on the ice.

Banff was visited, and for a prolonged visit would afford the most varied opportunities for enjoyment, besides being equipped with hot sulphur baths that have valuable therapeutic qualities. The situation of the hotel and the comforts provided are all that could be required.

Proceeding eastward over 900 miles of prairie, we reached Winnipeg and passed quickly on through the Rainy Lake district to Lake Superior, thence to the beautiful Muskoka Lakes, where we inspected the Muskoka Sanatorium with its fine new building for the free treatment of tuberculosis. This impressed us most favorably in its design, its equipment, its management, and in the cordial support accorded it throughout Canada.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

THE PRACTICAL MEDICINE SERIES: PEDIATRICS AND ORTHOPEDIC SURGERY. By Gustavus P. Head, M.D. 12mo, 231 pages. The Year Book Publishers, Chicago.

A BRIEF OF NECROSCOPY AND ITS MEDICO-LEGAL RELATIONS. By Gustav Schmitt, M.D. Small 12mo, 186 pages. Funk & Wagnalls Company, New York and London.

ATLAS AND EPITOME OF ABDOMINAL HERNIAS. Dr. Georg Sultan. Edited by William B. Coley, M.D. 12mo, 277 pages. W. B. Saunders & Co., Philadelphia and London.

THE SCHOTT METHODS OF THE TREATMENT OF CHRONIC DISEASES OF THE HEART. By W. Bezly Thorne, M.D., M.R.C.P. Fourth Edition. 12mo, 137 pages. P. Blakiston's Sons & Co., Philadelphia.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Volume VII, Materia Medica and Therapeutics; Preventive Medicine; Climatology; Forensic Medicine. Edited by Gustavus P. Head, M.D., Chicago.

DER HYPNOTISMUS-HANDBUCH DER LEHRE VON DER HYPNOSE UND DER SUGGESTION, MIT BESONDERER BERÜCKSICHTIGUNG IHRER BEDEUTUNG FÜR MEDICIN UND RECHTSPFLEGE. By Dr. L. Loewenfeld. 8vo, 522 pages. J. F. Bergmann, Wiesbaden.